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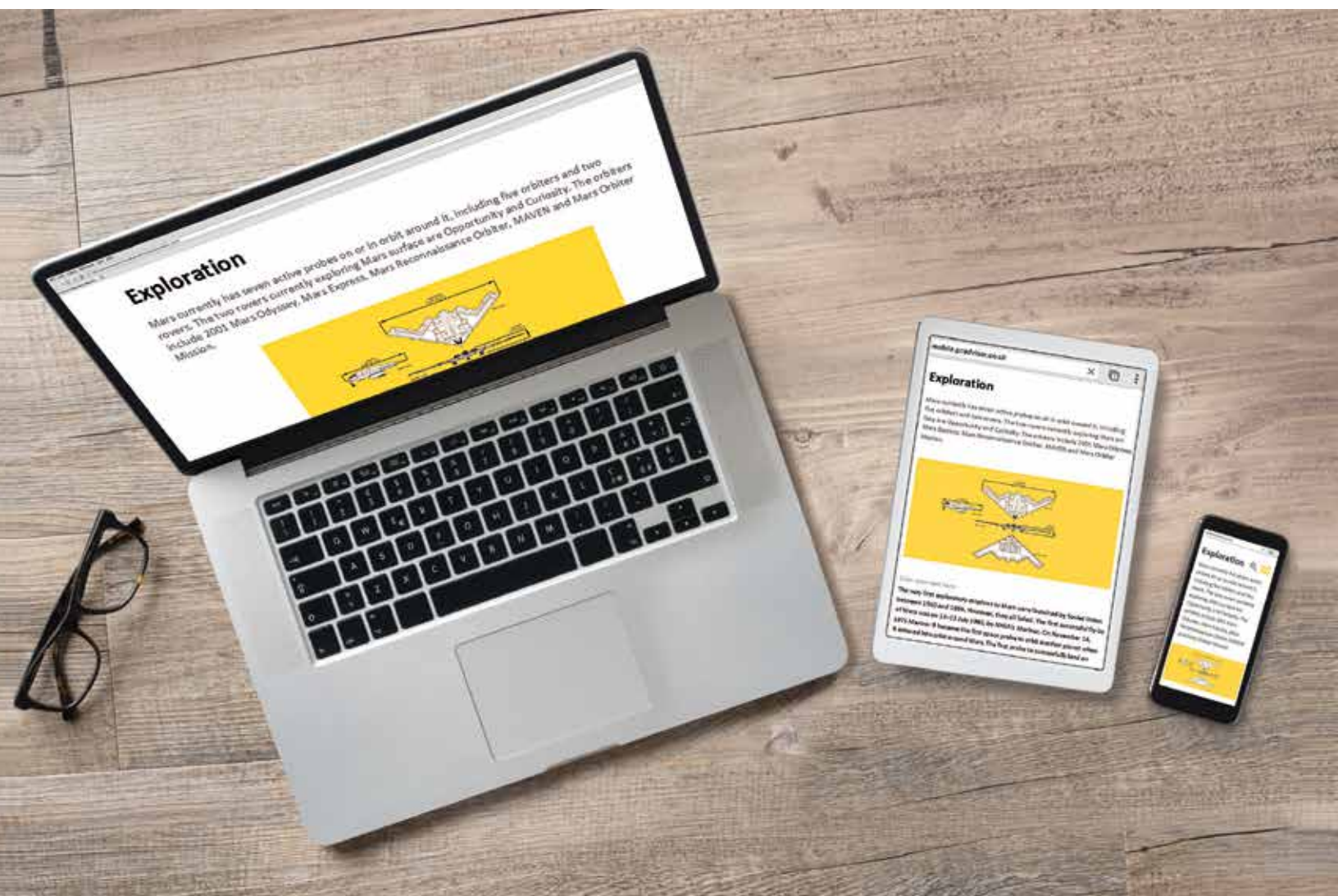
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Technical COMMUNICATION

Journal of the Society for Technical Communication

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Technical Communication is a peer-reviewed, quarterly journal published by the Society for Technical Communication (STC). It is aimed at an audience of technical communication practitioners and academics. The journal's goal is to contribute to the body of knowledge of the field of technical communication from a multidisciplinary perspective, with special emphasis on the combination of academic rigor and practical relevance.

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Benjamin Lauren and Joanna Schreiber

Special Issue Introduction: Emerging Forms of Project Management in Technical and Professional Communication



In January 2016, The World Economic Forum published *The Future of Jobs Report*, which indicated that 65% of primary school students would eventually work in jobs that do not currently exist. This is a staggering percentage—one that points to swift and widespread changes to how people work. It also points to the need for job preparation that moves beyond developing skillsets and toward an ability to practice critical and reflective thinking. As such, recent published work has suggested that adaptability is increasingly valued over experience in the workplace (Evans, 2016; Johnson, 2016). Further, discussions about the necessity of developing interdisciplinary, or “T-shaped,” workers has also been argued by IBM as essential for today’s employees (see Beyond IT Inc., 2009). As a field, technical and professional communication (TPC) is not immune to this evolution, of course.

Many of the changes noted in the previous paragraph closely align with Johndan Johnson-Eilola’s (1996) vision that TPC is symbolic-analytic work. We can locate examples of this point in recent scholarship. For example, many of us now work in user experience

(Reddish & Barnum, 2011), content strategy (Andersen & Batova, 2015), and as entrepreneurs (Spinuzzi, 2016; 2017). What we’d like to add to this conversation through this special issue, however, is that project management should remain an essential part of how our field thinks about the future of symbolic-analytic work. In fact, we believe it shapes these processes in important ways that deserve attention.

Scholarship in technical and professional communication (TPC) has examined economic and structural transformations that have influenced how projects are being managed at different workplaces. For instance, the near ubiquitous use of information communication technologies (ICTs) has brought on “the rise of networked organizations” (Rainie & Wellman, 2012), which has contributed to decentralized team structures (Spinuzzi, 2015), and changing production cycles and processes (Dubinsky, 2015). Furthermore, these changes have influenced how we define our values as field and the career paths available to us (e.g., St. Amant & Meloncon, 2016; Brumberger & Lauer, 2015). In our view, lost in conversations about these large-scale changes in TPC

work are discussions about project management (PM). Dicks (2013) has argued, despite being “critically important” to TPC, PM lacks a “dedicated” body of research in the field. A review of the literature in TPC in the last ten years since JoAnn Hackos’ (2007) *Information Development* seems to support this claim (Lauren & Schreiber, 2018).

Perhaps project management is overlooked because, as Scott Berkun (2009) humorously reminds us, it comes across as boring or dull. To those who express their surprise at his work, Berkun argues, “Project management is only as boring as the thing being managed” (par. 6). We agree that project management, when done well, is far from dull. One reason is that we see project management as a designed system, not unlike other social and cultural systems that emerge to help groups govern their interactions. Yet, we acknowledge that, as a career, it is not seen as glamorous. Maybe this is because project managers don’t own a product or experience that they help teams develop. Project managers are not artists, producers, or engineers. In our view, the project manager is more of a stage manager, navigating and facilitating the mundane of everyday work that is crucial for teams to be successful.

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Deliberately, this special issue builds off an integrative literature review we published in the preceding issue of this journal (see Lauren & Schreiber, 2018). In that article, we developed a sample of 128 sources (derived from an original sample of 326) from 2005 to 2016 to illustrate how PM has been situated in our field. We found that while PM was widely discussed as an important skill, TPC has done little to theorize it. The exigence for this special issue is that PM is not a static skill but a changing body of knowledge and practices. Additionally, we discovered that our field often talks about project management as a skill set to be acquired rather than as complex (symbolic-analytic) knowledge with a coordinated set of practices. The published work we encountered is very much focused on teaching project management tools instead of positioning it as a social practice that directly influences the outcome of our work in TPC. In our view, a focus on teaching (while important) is also short-sighted, because if project management is a designed system, then it is made up of an ecosystem of rhetorical situations that require critical thinking and appropriate action. In other words, it is important to charter a project, but how we approach such work is essential to the outcome of the chartering process. It makes good sense that a field so interested in advocating for people might also take the lead in ethical, human-centered management of project work.

Furthermore, TPC might also spend some time developing its own theory for managing project work, particularly the

communicative aspects. We do not believe those theories are inherently about tools and processes but about positionality. How are people organized on teams? What are their relationships? How is work made visible? What power issues are at play? How can project management practices respond to these questions? How might TPC enrich project management practices? How can processes be developed that assure quality? The questions we list here affect both the disciplinary knowledge and practice of TPC. They also promote a flexible and proactive approach to workplace practices and frameworks that we think serves both researchers and practitioners. We hope readers of this special issue will ponder these questions and see ways in which to use such questions to build from the entries in this special issue.

Special Issue Contents: Providing a Foundation for Research and Practice

The entries in this special issue illustrate a range of emerging project management concerns as well as diverse methods for studying and reflecting on project management. They provide an excellent foundation for future research and development of best practices of project management as symbolic-analytic work.

Discussing issues related to quality and process, JoAnn Hackos and Lori Fisher provide two complementary commentaries about ISO standards and project management. In “Information-Development Project Management as an International Standard,” Hackos points out that many

of the practices associated with ISO 26511 are aligned with best practices she’s been advocating in her widely adopted texts for many years. She argues that by explicitly incorporating the ISO and foregrounding such practices as part of a global system, academic programs can better prepare students to effectively engage in information management practices at both global and local levels. In “Project Manager Role in Quality Standards,” Fisher argues that ISOs help increasingly decentralized organizations develop quality content across projects.

In “Flexible Project Management Processes: A Case Study of a Distributed Trade Organization,” Katherine Robisch explores the distributed work of trade associations and how this structure affects project management practices. Robisch draws from interview and ethnographic data to illustrate the development of processes and products used to facilitate project management practices and team communication in a distributed trade organization. Her work helps us think about questions related to how teams are organized and the relationship between project management practices and the various rhetorical situations that surface at work.

Potentially building on Winsor’s (2003) work, Elaine Wisniewski, in “Novice Engineers and Project Management Communication in the Workplace,” uses the five-phase process from the Project Management Institute to examine the project management practices of early-career engineers. She draws from both observational

data and interviews with managers to illustrate that engineers are required to effectively engage in the communication practices related to project management and take on the role of project manager early in their careers. In doing so, she sets the stage for future research and improved pedagogies that focus on supporting workers during the early years of their careers.

In “Filling to Capacity: An Exploratory Study of Project Management Language in Agile Scrum Teams,” Erin Friess conducts an exploratory study where she presents a linguistic analysis of project management language used by Scrum teams. She notes that TPC roles are largely absent from the team meetings she studied and asks readers to reflect on what TPC practitioners could offer these teams. Additionally, she presents us with a method for studying scrum language that other researchers can adopt and repeat in a variety of contexts.

In “Toward an Encounter Team Model of Clinical Project Management: A Needs Analysis of a Family Health Center,” Dawn Opel, Cathy Abbott, and William Hart-Davidson analyze technical communication activities from an organizational (as opposed to agent) level. Their research addresses questions about making the work of a health clinic visible. To perform a needs analysis, their team of researchers collected and coded ethnographic data relating to technical writing activities that structure workflow and provide recommendations to improve communication activities that facilitate coordinated care.

Doug Divine and Mark Zachry address questions related to how

we can design project management systems to support reflection.

Though Enron is a famously failed project-based organization, its infamous demise left a large corpus of email, which Divine and Zachry use to illustrate that email can be used to develop reflective tools. Using the Project Management Body of Knowledge as a control for defining project management, they model project work as activity systems in order to illustrate email as one way to develop reflective tools. The goal is for technical communicators to help deploy such tools to ground communication and learning practices in fast-paced, collaborative environments.

Last, but certainly not least, Stan Dicks provides us with a commentary that introduces a prescriptive-descriptive continuum for thinking about work in project management. In his commentary, he specifically helps us generate useful approaches for thinking about how practitioner and academic work can (and must) stay in conversation with each other as we think about the future of work and the role of project management in facilitating what we do in TPC. His commentary is both inspirational and insightful.

Conclusion: Building Project Management for Future Work

As we conclude the induction to this special issue, we'd like to call attention to a very important word in the title of this special issue, the word *emerging*. Project management practices are, of course, changing and emerging. What we would like to ask is, How has TPC actively participated in emerging project management

practices and framework? And what would it mean for TPC to actively participate in shaping project management practices?

The entries we've assembled in this special issue illustrate project management as a rich research site for developing and refining best practices and frameworks. Further, many of the entries illustrate the importance of TPC methods and concepts as central to, but not always recognized, in project management. With this special issue, we advocate for TPC to work to build ethical, human-centered project management frameworks that better situate the complex role of communication practices in teams. Taking inspiration from Grabill (2006), we too would like to encourage TPC researchers to critically build on existing descriptive research. In other words, research describing project management practices provide a foundation, but unless we critically engage with descriptive research, it becomes a best practice by default.

Nearly twenty years ago, William Hart-Davidson (2000) asked an important rhetorical question in regards to TPC influencing information technology: “Why not us?” (p. 146). We argue that, in the case of project management, this question is applicable beyond the individual and is a charge for researchers and practitioners in TPC. No doubt, project management will continue to evolve with or without our input. Yet, we believe TPCs need to be more than participants—we must lead discussions about project management. Smartly, our field has generally ignored the assumption that technological development

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is the role of other disciplines or that the only role for TPC in technological development is to write about it. Project management presents our discipline with the same problem. In this special issue, the contributions offer us both a charge and an invitation to shape ethical, human-centered project management practices in a variety of workplaces and contexts through a TPC lens. In this way, we hope to offer a first step toward what it would mean for TPC to critically engage with project management as a practice and as significantly impactful knowledge work.

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On the Cover



The components of project management maintain a continuity from project to project. Yet, technology offers a streamlined efficiency that allows alignment of resources, allocation of funds and distribution of a work force in a precise and measured manner.

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ISO Standards Reinforce the Role of the Project Manager

Information-Development Project Management as an International Standard

JoAnn T. Hackos

International standards for information development, under the auspices of the International Organization for Standards (ISO), have been developed and published since the mid 1980s. Originally, the STC sponsored the membership of delegates to the ISO standards committee and supported standards work. More recently, ISO committee members from the United States are represented through membership in the standards body of the IEEE (Institute of Electrical and Electronics Engineers). My March 2016 IEEE Transactions article on the development of international standards for information development, “International Standards for Information Development and Content Management,”¹ outlines the process used to develop standards within the ISO community.

In the IEEE Transactions article, I explain why standards are important for information developers. Standards provide direction and guidance for students of information development, for those entering the profession without training or education in the field, and for experienced practitioners. I place standards for information development in the context of the worldwide development of standards for all types of industries and activities.

Many of the organizations that employ information developers, especially those engaged in the development of machinery, medical equipment, and computer software and hardware, rely heavily on ISO and other industry-specific standards. For those information developers working in standards-focused industries, understanding that there are information-development standards and applying those to work practices provides legitimacy and equivalence to engineering best practices. Consider that university engineering programs regularly

include the study of standards as part of required course materials. Information-development standards would be more widely recognized and adopted in the United States if university programs referenced them and included standards as part of reading requirements. Information developers adopting standards in the workplace would align information development with engineering practices.

One of the suite of information-development standards developed by the ISO team is the recent revision of *ISO/IEC/IEEE 26511: Systems and software engineering — Requirements for managers of information for users of systems, software, and services* (scheduled for final approval in 2018). This revised standard focuses on the role of the information-development manager in orchestrating a strategic direction for information development in an organization and the role of the project manager in planning and managing an information-development project and team.

The strategic and project management standards in the revised ISO 26511 are supported by the practices I developed in *Managing Your Documentation Projects*² and further in *Information Development: Managing your Projects, Portfolio, and People*.³ Both books have influenced a generation of information-development professionals through workshops offered worldwide and are used in some university programs. Experienced information-development managers in the US are already likely to be familiar with many of the practices in ISO 26511 but not with the standard itself, because the use of standards has not been institutionalized widely in the US. Information-development standards are more often embraced in Europe and Asia than they are in the US, because standards are viewed by senior management as a significant commitment to best practices.

1 IEEE Transactions on Professional Communication, Volume 59, Issue 1, March 2016.

2 John Wiley and Sons, 1994.

3 John Wiley and Sons, 2006.

Project Manager Role

As an example of European interest in standards, in November 2016, several of the ISO committee members responsible for information-development standards presented a panel on standards development at the Tekom conference in Germany. It was one of the most heavily attended panels at the conference, which hosted more than 3,000 people. Because standards are widely adopted throughout Europe, the interest in these standards among the conference participants was very high. A session on the revised management standard was equally well attended.⁴ European university programs and corporations are more likely to educate people on the use of standards and to proscribe their use in organization practice.

I recommend that standards be incorporated into academic programs in information development. In a recent graduate project management course that I taught for the Cork Institute of Technology in Ireland, the graduate students, many of whom were managing information-development departments and projects, learned that there were best practices they could follow based on international standards. During the course, they applied the project-management practices to a project in their work environment and found that following the practices gave them a significantly better understanding of how to manage their projects and communicate with their team members and with fellow engineering-team managers.

In the newest revision to *ISO standard 26511: Systems and software engineering — Requirements for managers of information for users of systems, software, and services*, the role of the information—development manager is outlined, as is the role of the information-development project manager. The information-development manager is responsible for the strategic direction of the organization and the building of an effective team. The information-development project manager is responsible for planning a project, whether that project follows a traditional waterfall approach or is developed in an agile environment.⁵ The development of a project plan, based on a careful analysis of the users and their information requirements, is a crucial foundation upon which a successful information-development project rests.

Without an information-development plan in place and an effective way of communicating with team members, information development may deteriorate into a set of procedures that account only for the basic features and functions of the product rather than the information needed by those who want to use the product to reach their goals.

An information-development project plan sets the stage for the information-development project, defining the goals and the scope of the project, the various user communities that the project will serve, the type and extent of the content to be developed, the translation and localization requirements, the project deliverables whether in print or online, the quality metrics or standards, the key inputs required from the product developers to complete the information project, and the amount of staff time required to complete the project successfully by the deadline.

To support the management of an information-development project, the project plan includes a detailed schedule for developing the information, an account of the potential risks involved in meeting the schedule, the required staffing and budget to complete the project, and the roles and responsibilities of the project's team members as well as the participation of the product developers and other stakeholders in information development.

A project plan is appropriate for information-development projects of all types, from entirely new projects to those that account for changes to existing information as products, systems, or services are updated. Project plans also serve to detail the expectations around projects that are solely focused on information development, such as policies and procedures for conducting business.

In accounting for the topics to be developed, whether they are collected into print or electronic books or are delivered using a documentation portal and dynamic publishing, a project plan initially ensures throughout the project that user needs are addressed through a comprehensive content strategy. User needs include not only procedures for performing basic tasks with a product or system but also understanding what can be accomplished using a product or system, what data is needed to support successful task completion, and how to respond when something goes wrong. A content strategy may also address how new or updated information fits into the product portfolio and the

⁴ <http://www.stc-sd.org/wordpress-4.0/wordpress/wp-content/uploads/2016/12/DevelopingStandards2.pdf>

⁵ FINAL DRAFT INTERNATIONAL STANDARD ISO/IEC/IEEE FDIS 26511:2017(E).

portfolio of existing information products. Including an annotated topic list as part of a project plan ensures that user information needs are carefully and systematically addressed initially and updated by the team as the project progresses.

Using a project plan to estimate the time and cost required to complete the project successfully also helps to ensure that projects are adequately staffed and that staffing levels take into account the inevitable changes that occur during a project life-cycle. Without a sound estimate of time required, based on data from previous projects, a poorly planned project can easily result in inadequate time for review and testing of the content or the assurance that the content is uniformly structured and written according to established rules and guidelines.

Once a comprehensive project plan has been reviewed and approved by the stakeholders, it becomes the basis for managing the project. The project manager tracks the project according to the deliverables, schedule, and staffing laid out in the project plan, adjusting the content to be developed, the staffing, and the schedule as the project progresses. Even in agile projects, an overriding project plan provides an epic story, an overall content strategy, that guides the work of individual team members who are often assigned to multiple agile teams with challenging work schedules. Without an overall project plan in place, it is too easy for individual team members to become focused on

meeting the demands of the product developers to document features rather than focusing on the needs of the user community.

A sound project plan enables an information-development manager to ensure that quality goals are not lost in the pressure to meet deadlines. A plan may accommodate extending delivery dates, shifting task milestones, adding writer resources to a project, or reducing or eliminating some deliverables, while ensuring that the quality of the final information products is not compromised.

Without adequate project planning, we have seen projects that amount to little more than anecdotes that describe how users might make sense of and work with a product or system. Much crucial information may be overlooked, especially information that provides users with a conceptual understanding of a product or system as a whole or supports troubleshooting problems successfully.

The role of the information-development project manager is essential to the development of the quality and timeliness of information products, and project planning is an essential ingredient to that development. By incorporating an ISO management standard into the work environment, an information-development manager can communicate to senior management that information development is well grounded in best practices that have been formulated and approved by the international standards community.

Project Manager Role

Project Manager Role in Quality Standards

Lori Fisher

Economic and structural transformations in the workplace and the near ubiquitous use of information communication technologies are leading to increasingly networked organizations with decentralized team structures and changing production cycles and processes, but one constant is the need to produce quality content—and to be able to verify the level of quality delivered. Even more important is the ability to predict the quality of content that will be delivered, thus avoiding the cost and customer impact of defective or inferior communication products.

As the workplace structures change and processes and team leadership become more asynchronous and decentralized, the role of a project manager with a broad view of standards across the organization becomes more critical than ever. A small scrum team with a single information developer has no way of assessing quality without the ability to compare across a much larger spectrum of information samples. A decentralized team of several information developers operating within an agile process cannot afford the time or resource to assess broader competitive trends or develop reliable customer-based evaluation methodologies. And best practices developed in one LEAN team are not likely to be replicated across similar decentralized teams without the oversight of a project manager responsible for quality practices across the networked organization.

To gain this broad-based view of quality, project managers at the micro team level must coordinate to share best practices, and set and measure quality standards, or a project management role can be established with cross-team responsibility and oversight specific to quality standards, practices, and assessment. Such a role includes management processes for defect identification and for establishing and measuring indicators of customer satisfaction.

In the newest revision to ISO standard 26511: Systems and software engineering — Requirements for managers of information for users of systems, software, and services, the project manager has clearly defined responsibilities related to the delivery of quality communication products, regardless of the process or organizational structures in place. Small, lean, decentralized, or agile does not change the fundamental requirement to produce

quality documentation, and to do so requires standards, metrics, and a process proven to produce communication that meets or exceeds those standards, both for defects and customer satisfaction.

As expected, the revised ISO standard continues to require a base set of metrics to be used across an organization for all projects, and a documentation plan that includes the metrics to be used and the data to be collected, at the outset of any given project. The standard emphasizes that measuring quality and customer satisfaction is essential to continuous improvement of the documentation and underlying process. Collecting and analyzing measurements over time also enables the project manager to use trend analysis to substantiate and quantify improvements in documentation, as well as identify problem areas that need correction or remediation. Instances of especially successful documentation, as well as successful process approaches, can be identified as best practices to be replicated across teams.

The revised ISO standard identifies five key roles for the project manager related to quality:

- Identify the set of metrics to be used to assess quality across projects, including defects and customer satisfaction.
- Ensure a process is in place as necessary to collect the specific measurements for each project.
- Use the measurements to correct defects and, through root-cause analysis, improve the documentation process.
- Where possible, use customer feedback to validate the measurements of quality and customer satisfaction.
- Strive to develop predictive metrics that can be measured in-process (during development) to take preventive action before content is delivered.

The last point warrants special focus as we think about the changing role of project managers in an agile, networked, or decentralized environment. Teams that form and re-form on demand have little historical data in common and yet will be held to an always increasing expectation of quality by the company or organization employing them. Higher productivity demands a better understanding of the process that will most efficiently lead to the best quality. A project manager with a broad

view of process and practices, and access to historical data reflecting defect rates and customer satisfaction, can drive the development of metrics that can be predictive of quality or satisfaction when measured in-process (during development), so that preventive action can be taken before content is delivered.

A predictive measurement is one that is correlated over time with a given quality or satisfaction result. For example, a project manager might analyze poor customer satisfaction ratings of documentation over time and determine that a common process characteristic across those instances is a low number of subject-matter expert reviewers, or, in some cases, only a single technical review meeting. If no documentation with 10 or more SME reviewers and two or more technical reviews has been found to have poor customer satisfaction ratings, this becomes a predictive, in-process measurement that should trigger preventive action before completing the information development cycle. That is, if a set of information has a review with only six SMEs and only one technical review meeting, then the process should require a second review meeting or additional SME reviews before the documentation is completed for delivery.

As another example, a project manager might analyze poor customer satisfaction ratings of English-language documentation over time and determine that a common characteristic across those “poor” instances is a measurement of 50 or fewer on an automated syntax tool used to assess clarity of text for translation. Perhaps the recommendations from this tool were not required to be addressed for documentation known to be shipping in English-only. However, based on customer satisfaction analysis and correlation, this rating now becomes a useful predictor of quality and satisfaction even for English-only documentation, and a minimum rating can be added to the process as a criterion for passing the information development phase across any project.

Of course, the role of the project manager in identifying and correcting defects, in assessing and responding to customer satisfaction, and in constantly improving the development process based on defect and satisfaction metrics remains critical and core to the success of any technical and professional communication project. Though team structures and process definitions change, the need to deliver quality communication remains constant.

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Flexible Project Management Processes: A Case Study of a Distributed Trade Organization

Katherine A. Robisch

Abstract

Purpose: This article examines project management and technical communicators at the distributed workplace of a trade association. Members work with association writers to actively influence the content and products, resulting in a unique rhetorical situation that drives iterative and flexible project management processes.

Method: This case study draws from semi-structured retrospective interviews conducted as part of a larger ethnographic study of trade organization communicators, their educational products, and their interaction with association members.

Results: The organizational structure of a trade organization results in a rhetorical situation in which technical communicators interact constantly with association members in both informal and formal settings, which leads to invention for informational products. The association restructured their communications team twice during this study in efforts to get more workers in contact with members and to create better content packages where editors, designers, and other specialists have input at multiple stages. Restructuring and the participation of members meant project management strategies must be flexible and arise from the rhetorical situation.

Conclusion: Though not drawing on specific project management strategies like Six Sigma or Agile, this organization creates and adapts flexible processes so that technical communicators can best serve their organizational mission. In addition, processes respond to the rhetorical situation created between members and writers, as well as between managers and technical communicators. Managers work to empower these TCs who are taking on more project management roles.

Keywords: content management, project management, distributed work, empowerment, practitioners

Practitioner's Takeaway:

- This study offers examples of project management as developed from the organization's rhetorical situation and working as a process within content management instead of a separate practice, helping TCs recognize how our skills as symbolic-analytic workers contribute to organizing work as well as producing texts.
- This study shows how less formal project management strategies can allow for more participation from TCs and involved audiences.
- This study examines how project managers can balance a TC's need for empowerment and direction.
- This study provides valuable descriptions of specific skills requested for technical communicators, building on scholarship on technical communication education requirements and showing practitioners how characteristics can help to establish expertise and trust.

“Being able to multitask, manage time, problem solve and communicate effectively are crucial to organizations that are small and mighty” – Interview response

Introduction

Technical communicators are exposed to all sorts of project management methodologies—from Lean and Agile to business model applications like “venture capital” or “contractor” models (Carliner, 2012). Dicks (2004) calls attention to management philosophies and how and why they influence managing TC projects, arguing TC managers should advocate for their workers’ value to the organization not just as wordsmiths but employees interacting with other disciplines in the organization. Training each level of TC workers helps to ensure their development as leaders and project managers. Further, as more TCs work in distributed work environments like adhocracies or in networked project teams, understanding their role in managing projects means looking at their texts as well as their contexts, including the ways in which they interact with audiences, material, and subject-matter experts. Examining these contexts as participatory can help to describe the ways TCs’ roles are expanding in organizations, fulfilling Dubinsky’s (2015) call to make TCs work more visible as “directors” and integrated team members with multiple skills. One participatory context technical and professional communication has yet to focus specifically on is the distributed work of trade associations like the American Medical Association or Public Relations Society of America.

This study examines the distributed workplace of a trade association (IHIRA) where texts are managed and assembled across teams of association workers and their member constituents. In this type of workplace, project management is an iterative and rhetorical process as teams interact with each other and outside customers (association members). As technology and rhetorical demands change, this organization actively modifies their project management strategies. For IHIRA workers, project management strategies emerged from and responded to rhetorical situations as workers developed expertise and content in conjunction with their member constituents. As one participant explained: “I’d like to say it has some sort of tie-in to higher function process management, but no, it really kind of developed out of what we thought made

sense.” Looking at what “made sense” to these workers, developing informal project management strategies shows how TC work in distributed environments involves both authoring texts and developing systems to manage their own work processes.

Background

A technical communicator’s flexible skill set means he or she works in a variety of organizations including trade associations for independent retail. According to one of my participants, there are about 35,000 independent home improvement retail stores that exist in the US and in Canada. These stores carry hardware items, lumber and building materials, and farm and home supplies in various combinations. The term *independent retail* means they own themselves and purchase from product distributors at buying markets—unlike big box stores like Home Depot and Wal-Mart who have large corporate buying resources, as well as resources to help run operations and other aspects of the store. These box stores directly compete in the same markets as independent stores, both in small towns and large urban areas. Increasingly independent stores are also competing with e-commerce sites like Amazon and its vast and quick delivery network. Competing against such big entities means independents must carefully run their businesses from products offered to marketing campaigns to in-store operations. Unlike big boxes that have entire departments for these areas, independents might only have one or two people, and, many times, each employee wears multiple hats. Fortunately, independent stores can splice in some of these resources through the assistance of their trade organization, the Independent Home Improvement Retail Association (IHIRA)¹.

Trade organizations or associations “serve as agents for disseminating and exchanging information within industries, and often act as informal regulators by setting voluntary standards of behavior for industry members” (Rajwani, Lawton, & Phillips, 2015, p. 225). Therefore, a trade organization offers knowledge products to members; in this case, IHIRA offers a news source and magazine discussing issues in the industry, market tools and studies, and educational opportunities like online training programs for employees, among others. Each of these information products is

¹ IHIRA, its products, and participant names are pseudonyms

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created through the technical communicators of the collaborative teams of IHIRA's office as well as retail owners who are members, creating an interesting project management situation.

IHIRA's Mission and Products

The Independent Home Improvement Retail Association (IHIRA) is a trade organization for the home improvement industry and explains its mission to help independent home improvement centers, lumberyards, and hardware stores, regardless of their wholesale affiliation become more profitable retailers (company website, 2017)

Trade association texts explain how IHIRA enacts its mission through three ways: education, advocacy, and association.

1. Education resources include paid and free online training modules and a college-level certification program, as well as the *IHIRA* print and digital magazine offering industry news and how-to advice.
2. Advocacy initiatives include a state of independents conference, an advisory group, and research studies on topics like social media, employee compensation, and operations costs.
3. Association resources include roundtable networking events to discuss issues like financial affairs, human resources, and marketing, as well as an all-industry conference.

These initiatives, as well as seminar presentations and other informational products produced by IHIRA emphasize the association's devotion to their members' concerns and show the importance trade organizations place on asking what their members need and developing resources to help them in response. Association members then drive much of the invention and content development for the association's information products, influencing the invention and project management strategies of association workers.

Situating the Discussion

Technical Communication in Distributed Workplaces

Examining the project management of an association means examining its organizational structure, which is a distributed workplace. Much TC research has examined

distributed work (Slattery, 2007; Spinuzzi, 2007; Spinuzzi, 2015; Swarts & Kim, 2009), especially in terms of flattened and networked forms where workers coordinate across work activities traditionally separated by "temporal, spatial, or disciplinary boundaries" (Spinuzzi, 2007, p. 268). Unlike more traditional work organizations like bureaucracies with strictly delimited trades, distributed work allows for information to flow in multiple directions among temporary assemblages of workers. Workers are multi-specialists who cross boundaries between fields to interpret clients' requests (Spinuzzi, 2015). IHIRA's employees are technical communicators who cross boundaries to find out what information products members need in order to better run their stores.

TC's Role in Organizing Distributed Work

Technical communication has addressed flattened organizations' work in terms of content management and symbolic-analytic work (Johnson-Eilola, 1996), particularly in terms of TCs taking a more active role in creating content management systems (Andersen, 2014; Hart-Davidson, Bernhardt, McLeod, Rife & Grabill, 2008; McCarthy, Grabill, Hart-Davidson, & McLeod, 2011). Distributed work often lacks central organizing forces, so workers build their own infrastructure through information technologies and worker-created texts (Swarts, 2010).

Technical communicators at IHIRA build and modify their own project management infrastructure, creating texts and tools to manage projects in addition to the educational resources they produce. Instead of a formalized project management method like Agile, they manage projects in response to the needs of the rhetorical situation, allowing for more autonomy and participation. Examining this type of project management can help to show what formal methodologies leave out (Lauren, forthcoming) and how technical communicators can contribute to project management strategies.

Many TC studies of distributed work don't narrow to the level of the individual worker, whom Slattery (2007) and Burris (1993) caution may lose expertise and status as they work farther from subject-matter expertise. That is, TCs could be relegated to mundane writing tasks instead of the empowered symbolic analytic work Johnson-Eilola (1996) describes. This study shows how individual workers of IHIRA

develop industry expertise as they interact with members and manage projects.

Related Work on Trade Associations and Worker Cooperatives

Alford (1989) studied collaborative texts of a hospital trade association, finding workers created and adapted texts and genres flexibly to enter dialogues with geographically dispersed members. Writers adopted organizational personas instead of valuing individual creativity, and most collaboration with members occurred through texts instead of talk.

Like Alford's hospital trade association, IHIRA has geographically dispersed members and emphasizes collaborative writing—though collaboration occurs through many channels.

Edenfield (2017) examined worker cooperatives, which are mutually owned like trade associations but differ as they have no outside members and emphasize a balance between profits and member needs. Cooperatives, like TC, value relationships between people and texts, and Edenfield advocates bringing TC theory to bear on co-ops' challenges, successes, and failures.

IHIRA's mission statement emphasizes profit and success for members, and helping members become more financially successful drives much of the information content IHIRA produces and distributes.

Methods

This article draws on data from a larger study of a trade organization and educational seminars offered at distributed buying shows. Trade organization employees created and delivered seminars to show attendees to share ways to improve their businesses. That study showed how writers managed and delivered content in a distributed environment and the specific literate activities they performed. To build off that previous work, this article specifically considers IHIRA's project management processes and the ways they've adapted in recent years.

Research Questions:

1. How does the trade association manage projects and content in conjunction with member needs?
2. How have processes developed and changed for producing content over the past few years?
3. How does this case study compare to other TC research on project management and symbolic-analytic work?

Approved by the author's institutional review board, methods included attending seminars by association employees to audio record presentation dialogue; conducting observations of audience members and participation; and collecting texts involved in the presentation, such as feedback forms and slide decks. Audio recordings were transcribed for coding and further analysis. These audio and print texts acted as a starting point for analyzing and tracing texts.

Bounding the Study: Focusing on Association Seminars

Studying distributed work's contexts can easily lead to "runaway objects" (Spinuzzi, 2011). To bound this study, I followed Haas and Witte (2001) who concentrate on engineers working on the same project. I limited my scope to the actors who present educational seminars at national buying shows.

These seminar presentations offer examples of technical communicators working for the association, directly interacting with members. The seminar is made of an assemblage of texts, including the speech and audience dialogue and slide deck, and draws from other informational products produced by IHIRA in conjunction with member input and needs.

Participants and Site

My participants present at industry events throughout the year, but to scope the project, I limited data collection to one distributor's twice annual market. Attendees included independent store owners from every US state and Canadian province, as well as several international countries. Markets are held at large convention centers in the US and seminars take place in meeting rooms near the exhibition floor.

Interview participants included three current and one former upper management association employees. Through the course of the two-year study, participants' job titles changed, but all participants had worked for the association in various text-producing roles for at least five years:

- Noelle, a former director of membership services, who presented two of the recorded seminars
- Max, a publisher and executive vice president, who presented three of the recorded seminars
- Ned, an education initiative executive director, who presented four of the recorded seminars

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- Sue, a communications director, who did not present any recorded seminars but helped design and author slide decks and other texts, in addition to other project management initiatives

Post-seminar Semi-structured Interviews

To further analyze these seminars and trace the texts involved, I conducted post-seminar, semi-structured reflective interviews (see Appendix A), much in the spirit of DePew (2007). DePew advocates going beyond textual analysis to triangulate data by interviewing digital composition researchers regarding published studies. These interviews allowed the authors to explain certain choices and constraints faced in their study, shedding additional light on their findings. For my study, these interviews helped to explain how the seminar presentations fit into a larger content management and invention process of the association—processes that have changed greatly over the past few years in efforts to better manage projects.

Despite the overall study's focus on presentations, this article concentrates on the project management strategies of generating informational products at IHIRA, as gleaned through post-reflective interviews with seminar speakers and IHIRA senior management.

Interview Data Recording and Analysis

Interviews were conducted via phone and recorded and transcribed, except for Sue's interview, which was conducted via email due to travel constraints. Phone interviews each lasted approximately an hour. Textual analysis of seminar decks and speech helped to diagram the resources IHIRA uses and recycles or repurposes through different informational products, and some of the persuasive techniques speakers implement, but such methods did not demonstrate strategies for how content and projects are managed at IHIRA. To learn more about how IHIRA writers assemble and repurpose texts like the seminars, I had to interview speakers and a communications director.

Interview transcripts were coded using starter and open codes (Spinuzzi, 2013), drawing from a grounded theory approach (Strauss & Corbin, 1998). Codes focused on strategies of invention, member interaction, processes, job and team descriptions, expertise, recycling content, managing documents or tools, and skills desired for future workers.

Findings

Managing Projects in the Trade Association and Sharing Expertise

Members of IHIRA, as an interactive audience, have a direct influence in the content and information products the association produces. To keep up with their needs, many of the IHIRA employees stay in contact with members in multiple communication flows, as Figure 1 demonstrates. Max explained how association writers visit stores across North America to talk to retailers and research stories, while other workers might talk to retailers in informal conversations at distributor shows or after presentations. Retailers come together to meet with IHIRA employees at more formal settings like roundtables. All workers who engage with retailers in any setting come together once a year in a content development retreat.



Figure 1. Communication flows between members and association workers

Roundtable discussions and conversations at markets and store visits offer a place for IHIRA employees to gain subject-matter expertise and hear constituents' needs and ideas, which directly figure into the content writers create and ideas they bring back to IHIRA. In each of the post-reflective interviews, participants described member interaction in conjunction with invention, or generating and developing content packages. The retreat provides a place for IHIRA employees to discuss what topics are concerning members or happening in the industry and then plan content for the magazine, training courses, and other informational products. Sue explained that each team

brings a few story ideas to the retreat, then divides the work tasks amongst the team members. Team members range in age and experience, so the retreat also helps to put them in conversations with Max and Ned, both of whom have over 20 years in the industry.

In some instances, Max and Ned act as subject-matter experts and quickly coordinate with team members to find sources. In other ways, however, editors and team members have devoted time to talking with retailers on multiple levels, including attending various roundtables and turning to social media to engage with members and research for stories. Developing expertise as a writer then becomes an integral part of the project management process at IHIRA. Writers can develop expertise by connecting with other association workers, and they can also work directly with their audience to develop content pieces. The unique structure of a trade association means it must constantly interact with the members it serves, allowing the audience (association members) to become more active in the rhetorical situation. The audience is involved, to draw from Johnson (1998), meaning they are actively engaged and participating in communication. According to Lauren (forthcoming), such participation facilitates a rhetorical agency. Writers at IHIRA have the opportunity to actively participate in learning opportunities with their audience of members through the multiple communication flows.

This rhetorical situation also means a top-down, prescriptive approach to project management could constrict writers or limit their agency to develop expertise. With multiple points of interacting with the audience, writers have to develop and refine flexible processes for managing projects. Noelle explained how researching for the development of training modules and attending the roundtables helped her develop expertise in the industry:

I personally made a lot of effort to not only put on those things but sit through them and learn and ask questions. I had to become confident in my own abilities to know what I was talking about too, so spending time with [Max] and [Ned] or in those classes and roundtables and being able to develop some of that training as well was very helpful.

IHIRA employees' direct interaction with members helps facilitate ideas for content packages and feedback,

as well as helping to initiate newer employees into the industry. Knowledge and expertise then get passed through various processes between newer and experienced writers and association members, which IHIRA's project management strategies must accommodate.

Roundtables and Certification Programs: Sources for Invention and Expertise

The retreat represents one spot where IHIRA draws from audience member suggestions to create informational products to meet members' needs. Ned also explained how roundtable discussions came out of conversations with retailers who wanted to get together with other members to discuss issues like marketing and merchandising. Roundtable discussions led to suggestions for other topic roundtables, like human resources and financial management. Conversations with members involved in roundtables led to creating a college-level management certification program for store employees who want to take on greater leadership roles in their organizations, which one of my participants described as an important need to address, as the average age of an independent home improvement retailer is around 60. Students in the program must complete a business improvement plan for their stores, which they enact, write up, and present to their classmates. Alumni from the class come back to help present case studies and network with new students. As Ned explained, IHIRA stores these capstone improvement projects and shares them with new students each year, as well as uses some ideas in seminar presentations or magazine stories. Storing and sharing the capstone projects marks another way IHIRA collaborates with members to create and share information assets.

Breaking Down Department Silos: Considering New Ways to Manage Projects

Like many organizations in the past few years, IHIRA has gone through a process of reorganizing its production team to break down siloed departments in which workers kept processes, ideas, and information within their department instead of collaborating across departments and sharing resources. While perhaps not the flattened co-ops (Edenfield, 2007) or all-edge adhocracies Spinuzzi (2015) describes, IHIRA sought to reorganize teams from marketing, design, training, and research to better utilize resources and produce more interactive content packages.

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Figure 2 demonstrates their original model of working, which visualizes how, just a few years prior, IHIRA had separately operating teams for areas like training, research, and the magazine, and few team members interacted or shared knowledge. Max gave an example of the training department working on loss prevention modules while the magazine department worked on stories about increasing transaction size and the research team conducted a study on inventory turns. Because each department was siloed, no one was sharing resources, even though some resources could be helpful to other departments. To change this process, IHIRA brought everyone together in one area and created teams with a peer-feedback loop. This meant everyone would think about loss prevention as an organizational topic, where one team would research loss prevention and then all teams would figure out: which elements of the findings worked for magazine stories, which elements worked for a training module, and which elements worked for videos or live presentations. Figure 3 shows how organizing teams around a research topic meant sharing resources.



Figure 2. Original siloed model



Figure 3. Organizing resources around project topic

Max extended the loss prevention example: “a story in a magazine might talk about here are three retailers who had a huge loss in the business and what they did to mitigate those losses in the future.” Training materials could include quizzes and videos on how to spot potential loss vulnerabilities. A seminar presentation could walk audience members through 5 steps of training employees:

We look at what’s this topic? Then how do we tell the story differently using these different resources we have? We have a pool of information, and 50% of that might cross over into each one of the different ways we use it, but each one still has a unique element to it.

New Job Titles, New Processes

Restructuring teams also meant changes in job titles. Sue started at IHIRA in 2008 as a graphic designer before advancing to a design supervisor, art director, then creative director. Through these roles, she noticed a disconnect between editors and designers. Typically, editors determined topics to cover, wrote most of the story, and then handed a finished draft to designers without much collaboration or communication. She explained:

This seemed like such a waste of talent and opportunity to create more meaningful story packages. When writers and designers work together on stories from beginning to end, they both learn more about the subject matter and provide different perspectives on the best way to present the information together.

Under the new team concept, Sue’s title became “Director of Communication,” and editors, developers, and designers began reporting to her. Max worked with her to determine how to best assemble employees into teams and decided on 10 teams of three to five people based on subject matter. No team leaders were assigned, so each team could autonomously divide labor and hold each other accountable, resulting in a democratic and employee-led structure. Figure 4 shows how teams reassembled and adapted processes to generate different kinds of content collaboratively.

Mixed Results

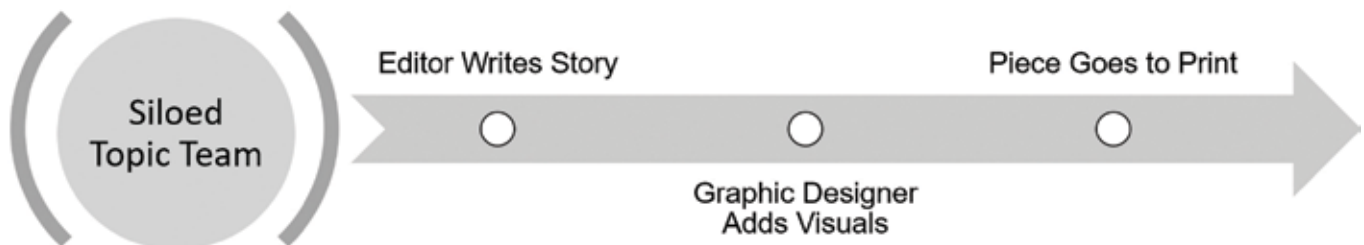
Magazine stories and online elements became more creative and interactive as people with different skill sets worked closer together. More staff members gained industry expertise and invested in the organization and the retailers they served. Having 10 teams, however, meant more processes, meetings, and deadlines, according to Sue. Lack of a team leader sometimes led to lack of initiatives and accountability, and some products were substandard, and workers missed deadlines. Aspects of project management like scheduling and accountability must be strategic, meaning they respond to the audience needs and broader situation. In this case, the rhetorical situation between Max and Sue (rhetors) and project teams (audience) needed to be addressed.

Max and Sue decided to iterate their division of labor. They consolidated 10 teams until four remained and each team member only worked in two teams. Figure 5 shows how teams were consolidated from 10 topic areas to four broader topics. The four teams consolidated included:

1. How-to, Management, Operations, and Training
2. News and Research
3. Marketing and Outreach
4. Category Trends and New Products

Responding to workers' need for accountability, Sue assigned a team leader for each team and created documents to outline specific member responsibilities. Additionally, each team included at least two editors, at least one designer, and least one member with "special skills" like Web and video development, research skills, and social media expertise. Bringing these skill sets together for a whole process meant designers could offer suggestions for multiple ways to share information, such as creating infographics instead of text copy, earlier in the content creation process. Figure 6 shows how placing a team leader strategically with two editors, a designer, and a special skills worker was a response to the organization's need to clarify accountability while maintaining different TCs' contributions early in the invention process.

LINEAR PRODUCTION PROCESS



REVISED PRODUCTION PROCESS

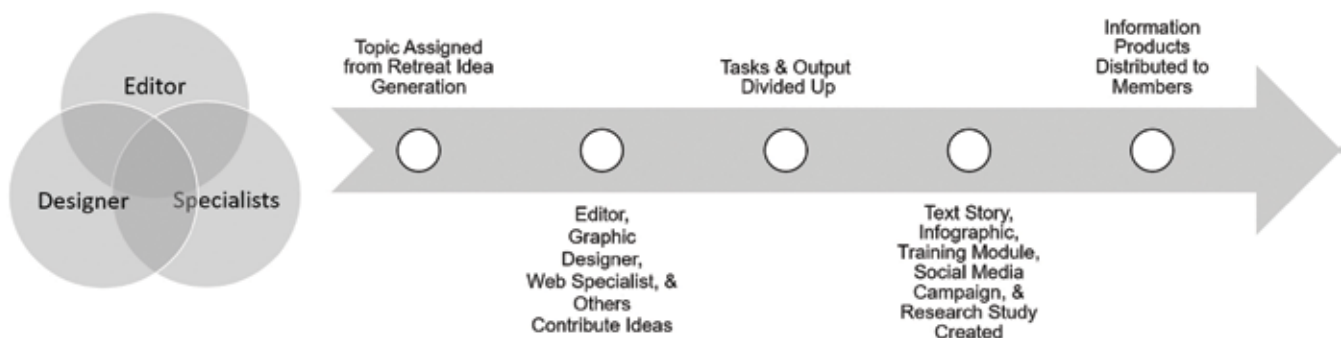


Figure 4. Reorganizing project management

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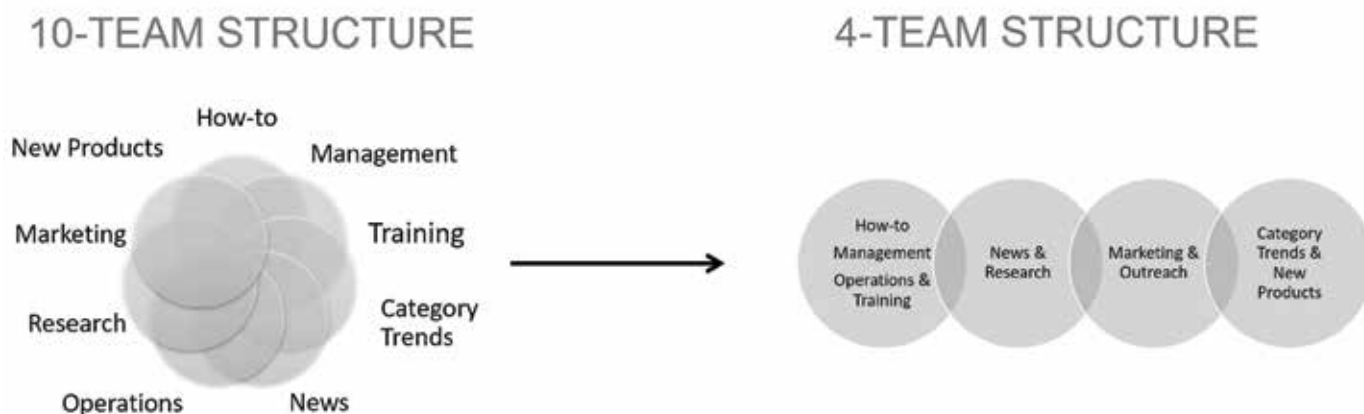


Figure 5. Consolidating topic teams

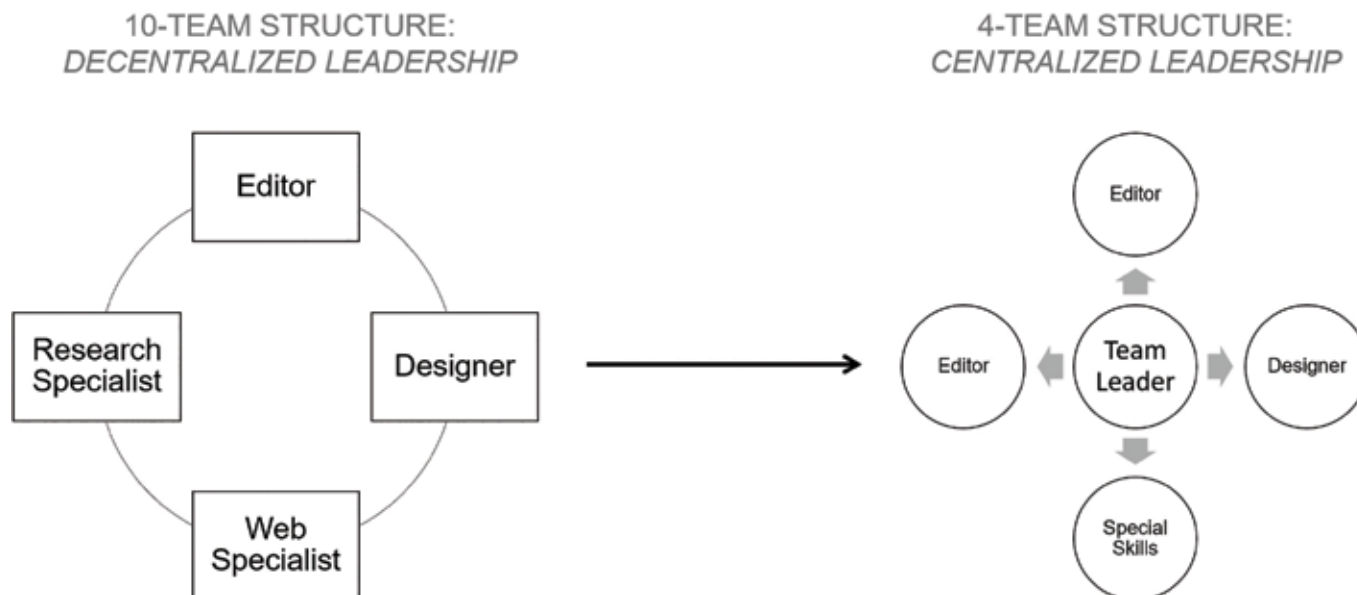


Figure 6. Condensing and reorganizing teams

Project Management Documents: Facilitating Distributed Work

Distributed work can lack a central organizing force, Swarts (2010) notes, which often leads to groups building their own infrastructure using information technologies and texts they create. As IHIRA worked with the new team approach, Sue developed documents to help teams manage processes. She created a three-month calendar to help teams focus not just on the upcoming magazine issue but projects three months out. With a project-focused structure, teams needed to plan in greater detail than previously. As a self-identified process person, Sue explained the best way to help people learning is through developing documents,

whether through processes for checking out equipment, production process sheets, or roles and responsibilities guidelines. Creating documents helps to manage projects and lets employees take more active roles, but Sue stayed cautious not to create so many documents that workers would feel lost. These documents helped to stabilize work into repeat processes, but Sue developed documents continuously in response to team members asking questions or facing issues with projects. Not all projects have the same process, but these documents help to break down some aspects of work and give team members the chance to teach themselves and act as more empowered workers. This strategy for managing projects isn't a formal system, but it is highly

rhetorical—responding to the needs of the audience (team members), with the purpose of giving enough direction for them to complete work but with processes that aren't prescriptive, allowing them to participate in managing the process. Some documents explain how to use the organization's tools; like Google Drive, Slack, Trello, and WordPress; to better collaborate and manage projects. As technical communication research has described (Slattery, 2007; Swarts, 2010; Spinuzzi 2007, 2015), distributed teams coordinate through writing and create processes and texts to manage their decentralized structure.

Example Project Management Process: Annual Operating Costs Study

Following the texts and processes of IHIRA's annual *Operating Costs Study* (OCS) shows how the four-team structure manages projects and information across each other and association members. For the study, IHIRA compiles financial data submitted by members into a report that shows industry averages and ways to gauge and improve their performance, focusing on metrics like sales, profits, and transaction size. Retailers participate by sending in their financial information through an online form, emailing their information, completing a print survey and mailing it, or faxing documents. IHIRA keeps the information confidential but does return to each participant a free personalized financial analysis of composite financial statements, including a strategic profit model and a tool to calculate what-if scenarios.

The above process description shows how project management strategies at IHIRA are responsive to the rhetorical situation of the organization's work. Content information comes directly from the audience of association members, while the rhetors of IHIRA work to assemble the information to fit the purpose of the study—helping their members gauge and improve their business performance. First, IHIRA's CFO works with the news/research team to update, design, and print the survey. Then the marketing team steps in to work with the CFO to craft a promotional campaign to solicit responses from members. Members have multiple ways to submit their information, reflecting how IHIRA keeps up with technologies and processes of their members. Providing multiple ways to participate also shows how IHIRA meets the audience needs of their members; some may have extensive technical skills

and standardized documents, while others may use less technical tools. The OCS directly reflects the mission and purpose of IHIRA—to help retailers, regardless of size or affiliation, be successful.

Once members send in their information, the CFO works with an intern to crunch numbers and build individual reports for each participant. Again, the participatory nature of these reports requires flexible project management strategies. As authors, the CFO and intern have to craft a report that meets the needs of the individual retailer. Once all the data have been compiled, the CFO works with the news/research team to write and design the study as a report. Together, they also identify numbers or metrics that are interesting and plan additional projects that involve the study. This might include a magazine story, a series of how-to videos about using the study to benchmark performance, or even a training module on how to utilize the study's information. The CFO and news/research teams' work of writing, designing, and planning future projects acts much like the retrospective meetings in Agile processes. The 2016 study came as an interactive package where users could choose their store classification (home improvement center, hardware, or lumber/building materials dealers), then enter their information for a direct comparison. Presenting the information as an interactive package shows again how IHIRA meets the needs of their audience and stakeholders, who can easily compare and forecast their own information and quickly conduct their own analysis.

The project lifecycle of the OCS study and materials extends to other IHIRA texts. Many of IHIRA's seminar presentations in this study referenced the OCS study. For example, two participants mentioned using the OCS as a benchmarking tool in a "Quick-Wins" seminar. Mentioning the study as one opportunity to help improve business also gave the speakers a chance to promote the study and solicit additional recipients.

Discussion

Learning how to best involve people in project management strategies needs to take focus as we examine changing workplaces (Lauren, forthcoming). For IHIRA, developing ways for teams to communicate also means accounting for team members interacting with association members who participate directly

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in invention. The process is iterative and reflexive, as TCs work with audience members and in teams to develop broader content packages, but its user testing procedures are not as formal. As a trade organization, IHIRA emphasizes its mission to help retailers by interacting with its members in unofficial feedback loops and multiple methods of communication. Members participate as an active audience because of the rhetorical situation created by IHIRA that maximizes opportunities for their interaction. Prescriptive project methodologies risk losing out on such participation, which may explain why IHIRA iteratively develops strategies in response to audience needs.

Balancing Empowerment and Project Management

As my participants reorganized teams, they addressed the complex rhetorical situation in their organization. Managers had to craft tools to respond to team members' exigencies, but they also had to leave room for agency. The four-team structure, assigned team leader, and documents to help detail processes helped return some autonomy to employees, even though the process documents came from a director instead of being created through a more democratic process.

Developing Expertise and Allowing for Participation

Team members gain expertise and ethos (i.e., credibility) from working closely with member constituents and from learning from senior employees. Condensing to four teams allowed more workers to interact with members, leading to increased subject-matter expertise and buy-in to IHIRA's mission to help independent retailers. More team members interacted with association members, then collaborated to think in terms of content packages involving text, design, and interactive Web tools, instead of a linear process leading from editor to designer to web developer. Again, the organizational situation of IHIRA allowed for these different team members to participate early in the invention stage to conceptualize and manage projects.

Maximizing opportunities for interaction isn't always a smooth process, and project managers should expect "periods of confusion and frustration" (Lauren, forthcoming). Such periods occurred at IHIRA when trying to empower team members to take initiative and demonstrate willingness to learn—qualities each

participant listed as important at their organization. According to Sue, "The biggest thing that I think applicants find difficult to understand is just how much we do and how fast we do it. Being able to multitask, manage time, problem solve and communicate effectively are crucial to organizations that are small and mighty." Communicating effectively at IHIRA also means being honest about one's abilities. Max explained, "Let's don't pretend that you know something that you don't know and don't try and make something appear that is something that it isn't." He described a former employee who always made a point when interviewing or presenting to tell people when she didn't understand and ask them to clarify, which disarmed members' expectations and created trust and credibility.

Obtaining trust and credibility, especially with association members, is key to the audience/rhetor relationship in IHIRA's rhetorical situation. Lauren (forthcoming) asserts project management methodologies can control both how teams communicate and what they develop. The organizational structure of IHIRA as a trade organization also allows for writers to interact openly and learn from member constituents. Formal project management strategies often include user testing as an official stage, but IHIRA communicators work iteratively with members throughout multiple project lifecycles.

Responding to IHIRA's organizational rhetorical situation, Sue and Max implemented team leaders, which led to accountability. At the same time, the invention process of addressing topics with designers, specialists, and editors helped maintain some team member empowerment. Implementing team leaders allowed Sue to help push workers to take more ownership and initiative, and some workers saw this strategy as an opportunity to grow in the company. Fostering initiative can be one of the hiccups of rhetorically grounded project management practices. As Sue explained:

Small companies really don't have the time to encourage staff to always be looking for ways to improve the things we do. Just because a project is done a certain way for 15 years, doesn't mean we should just do it that way for 15 more. Ask questions, bring new perspectives. It shows you care and you typically learn a lot from it.

IHIRA benefited from a rhetorical situation that valued team members and encouraged them to see content as packages and gain expertise through interacting with members. But they couldn't always explicitly encourage "taking initiative," likely because the distributed nature of their "small but mighty" organization required all workers to wear multiple hats, addressing multiple situations.

Creativity, Initiative, and the Importance of Personal Characteristics

Technical writers, who must often continually read their audience, also need to be aware of the unarticulated values of their distributed workplaces. Such awareness may be increasingly important in sites where project management is not a formalized process. Workplaces like IHIRA show how project management processes grow out of rhetorical situations. As experts in rhetorical analysis, TCs can actively and quickly contribute to these project management processes if they can identify and seize the opportunities. These opportunities don't exist as specific steps or check points in a project lifecycle or strict process; instead, TCs must advocate for early involvement in content processes and demonstrate their value to help develop content management practices that benefit the organization.

The association workers in Alford's (1989) study talked about adopting the persona of their organization and the times it might mean stifling their creativity and initiative. Conversely, at IHIRA, workers were encouraged to creatively solve problems and collaboratively approach designing and developing information products. The flexible processes at IHIRA "made space" (Lauren, forthcoming) for workers to participate in managing projects. Alford worked with a hospital association, however, and conducted her study before some of the information technologies allowed for trade organizations to be more widely dispersed and for multiple venues of reaching members. In Alford's case, personal characteristics like "problem solving" meant adhering to association guidelines and culture over looking for new ideas or creative solutions. At IHIRA, however, creative solutions and willingness to try led to career advancement, as Noelle stated, "I would not have had the opportunities to move up and do different things at IHIRA and become a director in five years if I hadn't been willing to try different things or ask to be a part of different things, and I was willing to do that." Worker

initiative and willingness to learn became increasingly important as IHIRA created new products to respond to member needs, as Noelle further explained:

Part of it is also a necessity of the business. If we wanted to be able to offer new things to the industry, someone had to do it, and the resources weren't there to hire somebody new. I was the one willing to do that, and so I got to try different things.

The personal characteristics Noelle, Sue, Max, and Ned cited as being important echo what Brumberger and Lauer (2015) found in studying technical communication job postings. This study furthers those findings, because, as technical communicators continue to work in team and project-based distributed workplaces, they need to be prepared to take initiative and wear multiple hats for each project without depending upon regular reinforcement—or formalized steps like those of specific project management methodologies. Creating process documents at IHIRA allowed for stabilizing some procedures and offered some direction, but these documents did not necessarily provide guidelines to encourage workers to take opportunities and help revisit processes.

Future Research

Future studies on distributed or ad-hoc work should continue to look at the personal characteristics necessary for newer and less formal project management teams. Future technical communication research should continue to focus on smaller and distributed organizations not just in terms of content management but how they enact policies for encouraging worker initiative. This study presents an interesting case in which senior workers want initiative and willingness to learn and are willing to reorganize work to best create information products. Investment from employees, however, requires being willing to work closely with members at retail stores to almost become the subject matter experts. This echoes Brumberger and Lauer's (2015) assertion that "willingness and ability to learn—again, frequently mentioned in the job postings as a desired characteristic—trumps expertise with a specific toolset," though they concede the most marketable candidates will have both. Studying these trade association writers who interact with members to gain expertise also helps to mitigate Burris' (1993) concerns

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of polarizing expertise in distributed workplaces. As we further research into smaller distributed workplaces interacting closely with customer concerns, we can continue to examine how differing expertise is valued or diverges.

Limitations

One limitation of this study is that it involved interviewing only senior workers instead of other team members who participate in the project management and development processes. All workers interviewed have worked as technical communicators to gain expertise in the industry, and most cite their journalism or design background as informing their perspective and helping them to become subject-matter experts in the industry—and, consequently, top association employees. Still, discussing processes and initiatives with more workers who have been reorganized and work with the production documents and tools might offer a greater perspective.

Also, this case study of one trade association does not offer generalizable results for every trade organization or workplace involving technical writing and project management. Still, as a smaller meta-organization (Ahrne & Brunsson, 2005), it deserves technical communication's attention. "Small but mighty" organizations conduct work at an incredible and in-depth speed with fewer resources and informal processes, offering a new take for examining project and content management in action. Perhaps not as empowered as Edenfield's (2017) worker co-ops, trade associations and their members still work together to produce content. These are some of the networked and federated spaces where technical communication involves distributed work, which leads to creating project management strategies to bridge tasks. These smaller instances and their processes, though seemingly less rigorous, can help us to see what's at the heart of project management and symbolic analytic work and to argue for the value of our work in many fields.

Conclusion

Though not drawing on specific project management strategies like Six Sigma or Agile, this organization creates and adapts flexible processes so technical communicators can best serve their organizational mission of helping members run successful businesses.

In addition to the mission, processes respond to the rhetorical situation created between members and writers, as well as between managers and technical communicators. Managers work to empower these TCs who are taking on more project management roles, depending on their understanding of initiative. As TC educators, we need to take into account that our students might not be working under formal project management models, meaning they must continue to use their expert rhetorical skills to read their audience of managers as well as end-users. Practitioners must also pay close attention to the organizational needs of their workplaces so they can be prepared to implement or revise project management strategies that best meet organizational goals. TCs can be taking a more active role in project management, particularly in distributed work, if they recognize and seize such opportunities.

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Appendix A: Semi-structured Interview Questions

1. What are the IHIRA “teams” who help put together content
2. How has the structure of the “teams” changed since you’ve been at the association?
3. What are your job titles and responsibilities at the association? What are some of your previous job titles and responsibilities during your time there?
4. Do you have any official systems/databases or schedules to keep everyone on task? Or to organize projects?
5. What about texts/documents that do so (i.e. project checklists for editors? Post-it note systems or calendars?

Regarding content packages/content management

6. How much of that goes through your team?/what is your role in developing, managing, producing these?
7. How do you break up tasks and responsibilities like going through the data, writing the report, designing the print and online products or stories?
8. Who creates online tools, like the calculators and comparison tools?
9. Are you or members of your team coding or working with technology to create content, whether for web or other applications?
10. How is work split up regarding training materials?
11. What has been your role/your team’s role in the leadership training institutes?
12. What is your/your team’s role in creating seminar presentations?
13. I’ve heard and seen the association make efforts to present a more consistent brand image---what has been your/your team’s role in that?
14. In terms of content management--do you have a system or something set in place as a repository for all the info?
15. How do team members work together to create magazine stories and related content?
16. How do they share content and topic expertise? Reach out to association members?
17. What other tools, practices, processes have been helpful in terms of organizing work?

Managing projects and content?

18. For students/future workers who want to work in associations like your, what advice do you have? What skills do you look for/hope to find?

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Appendix B: Methods

	Original Study	Project Management Portion
Research Questions	<p>1) What specific literate activities are performed to achieve the desired outcomes with the seminar presentations? Who performs these activities?</p> <p>2) How does the work done to compose, present, and experience these seminars illustrate or challenge existing theories of distributed work?</p>	<p>1) How does the trade association manage projects and content in conjunction with member needs?</p> <p>2) How have processes developed and changed for producing content over the past few years?</p> <p>3) How does this case study compare to other TC research on project management and symbolic-analytic work?</p>
Site	2 educational seminars at each of the 5 buying shows (10 seminars total)	Phone and email follow-up interviews regarding larger project data collection
Methods	Record and transcribe seminar audio, collect presentation slide deck and other presentation materials	Transcribe phone and email interviews; collect sample documents if available
Coding & Analysis	Starter & open codes focusing on presentation persuasive techniques, content recycling in seminar speech and slide decks, and resources pointed to and drawn from	Starter & open codes focusing on processes of invention, member interaction; expertise sharing; team development and responsibilities, and managing processes in creating presentations and other products

Novice Engineers and Project Management Communication in the Workplace

Elaine C. Wisniewski

Abstract

Purpose: This mixed-methods case study identified workplace communication practices of novice engineers and the perceptions of their managers.

Method: The study design employed convergent parallel mixed methods to identify common themes. Qualitative data were collected through open-form survey questions, diary/activity logs with follow-up semi-structured interviews, and contextual inquiry methods. Quantitative data were collected through surveys with Likert-rating scales and choice questions. Data were collected using three sources (novice engineer, engineering manager, researcher) to triangulate methods and consisted of a macro-study, with 12 participant engineer/manager pairings, and a micro-study, with 4 pairings.

Results: During data analysis, a major theme that emerged was project management communication activities, such as planning project activities, providing or soliciting updates on project activities, coordinating or facilitating a meeting or training session, and documenting and disseminating meeting discussions. Managers provide constructive criticism to novice engineers regarding their communication abilities. Specific themes were needing to (1) provide 'big picture' context prior to technical details; (2) develop clear, appropriate written and visual content; (3) provide confident, timely content to the audience; and (4) increase interactions with technicians and operators.

Conclusions: Novice engineers fit into a technical and social context and communicate as project managers. These communications and activities are not reserved only for more experienced engineers. Additional research with novice engineers and project management communication activities would be helpful, including an analysis of the training and support needed to be effective communicators as project managers.

Keywords: novice engineers, project management communication

Practitioner's Takeaway:

When mentoring engineering students in academia or novice engineers in industry regarding project management strategies, look for approaches to

- increase their exposure to and practice with a variety of meeting communication, including impromptu meetings to formal project meetings,
- raise their awareness of the importance of building relationships with downstream audiences and external audiences,
- practice their preparation of informal communication genres, and
- raise their awareness of strategies for working with multi-disciplinary colleagues.

Novice Engineers

Introduction

Novice engineers begin their employment with basic, technical, disciplinary knowledge from their coursework and/or internships and co-operative education experiences. This technical—mathematical and scientific—knowledge is then utilized in the engineer's daily activities to analyze and solve problems. To assist in their work, the engineers will use—at varying frequencies—computerized tools to develop work products/deliverables, such as spreadsheet software for data analysis, word processing software to prepare short reports/memos and meeting minutes, presentation software to prepare slides, computer-aided-design (CAD) modeling software to develop prototypes, and email software to transmit their deliverables and schedule meetings (e.g., Anderson, 1985; Kreth, 2000; Winsor, 1996; Wolfe, 2006). This type of work can appear, on the surface, to be solitary and void of social interaction and considers the engineer as only a technical specialist, which is not consistent with how engineers actually function within an organization.

Studies of engineering workplaces show that engineers work on multi-disciplinary project teams and are required to demonstrate non-technical professional skills (or “soft skills”), such as effective communication skills and ethical reasoning, and societal and global awareness (e.g., ABET, 2016; NAE, 2005). Other studies provide insight into the dynamics of effective teams, including the importance of engineers needing to employ interpersonal skills in a conversational and informal setting (Darling & Dannels, 2003; Martin, Maytham, Case, & Fraser, 2005; Wolfe, 2009). Ultimately, queries of executives and managers show that “technical abilities are a given; communication and leadership differentiate,” leading to recognition, promotion, and confidence (Sageev & Romanowski, 2001, p. 690) and that “an essential part of an engineer's job is communicating results or recommendations” to motivate action (Norback, Leeds, & Forehand, 2009, p. 13; Trevelyan, 2014).

The work of an engineer is situated within both technical and social contexts, and the engineer's work cannot exist in only one or the other. In *Making of an Expert Engineer* (2014), James Trevelyan, who conducted numerous field studies of former students/practicing engineers at work, argues that the engineer may not consider him- or herself as a project manager,

which the engineer may view as “planning, preparing a Gantt chart, and is largely an administrative non-technical function, something that anyone who can't handle ‘technical stuff’ is able to do” (Trevelyan, 2014, p. 325). However, Trevelyan argues, project management is actually “leading and guiding people to faithfully translate technical ideas into an engineering reality in line with project objectives” (p. 325), of which having membership within the socio-technical contexts allows experienced and novice engineers to be particularly well suited as project managers. Other perceptions of the project management role, as reported in the literature, is as a transition from a technical role to a managerial role in the organization/company and as a career shift to more power and influence in the organization (Hodgson, Paton, & Cicmil, 2011).

Project management can be viewed as a profession in and of itself, especially given the 40+ years existence of the PMI (Hodgson, Paton, & Cicmil, 2011; PMI, 2018). The PMI website markets its Project Management Professional (PMP®) as the “gold-standard” certification that provides “a significant advantage when it comes to salary and earning potential . . . a higher salary (20% higher on average) than those without” (PMI, 2018). However, Hodgson, Paton, & Cicmil (2011) argue that although the shift later in one's career from a technical role to a management role is often viewed as a promotion, it can be met with the misconception of power and heightened status. Hodgson et al. (2011) found in their focus groups with experienced project managers who transitioned from a technical role to a project management role that their daily activities are “often at a lower level than was anticipated . . . including responsibilities of a ‘glorified secretary’ such as managing templates and schedules for delivery, and chasing up overdue tasks” (p. 380).

Although project management responsibilities are not specific to just engineers (quite the contrary, as project management is ubiquitous throughout disciplines and industries), the expectation for novice engineers (rather than more experienced engineers) to assume this role and to demonstrate effective communication skills has not been explicitly stated in the technical communication literature. Therefore, the present study suggests that novice engineers communicate as project managers.

This article describes how novice engineers approach project management communication with

data drawn from a larger study designed to explore gaps in engineering communication curricula. I begin by briefly describing the overall study in order to contextualize the data relating to project management communication. I then use the Project Management Institute (PMI) five-phase process to analyze two types of results: 1) project management communication practices observed, and 2) feedback from managers and engineers about improvements needed in project management communication. I then bring these two sets of results together and offer suggestions for future research.

Methods

The study design employed *convergent parallel mixed methods*, in which the quantitative and qualitative data collection occurred simultaneously to converge upon identifying common themes (Creswell, 2014). Qualitative data collection methods included open-form survey questions, diary/activity logs (“weekly

updates”) with follow-up semi-structured interviews via email as needed, and contextual inquiry methods (semi-structured, unstructured interviews; observations; focus groups). Quantitative data were collected through Likert-rating scales and choice questions. All methods were exempt by the Human Research Protection Programs at Texas Tech University (#505246) and the University of Michigan (#HUM00102347).

Participants

To reduce systematic bias and triangulate methods, data were collected using three sources (novice engineer, engineering manager, researcher). Twelve participant pairings were recruited through non-probability sampling approaches (purposeful, snowball, and convenience sampling) and through various sources, including alumni databases, colleagues, guest speakers in courses, and the already recruited participants. Participation was not incentivized. Table 1 shows demographic and company information for the 12 pairings.

Table 1. Demographics of engineers and managers, and site descriptors. Each pairing was assigned a numerical code, and their numerical codes range from P1 to P10. However, two engineers (P2, P5) were transferred to another rotation and location within their company in mid-March, but they still wanted to participate in the study. Because they had a new manager, the code for their first pairing was coded as “a” (P2a, P5a) and their second rotation is coded as “b” (P2b, P5b).

Pairing	Engineer				Manager		Site Descriptors		
	Gender	Major	Age	Grad Year	Gender	Years Exp.	Industry	Comp.	Location
1	Female	Chem	25	2012	Female	29	Packag.	A	Midwest
2a	Male	Chem	22	2014	Male	5	Chem.	B	Midwest
2b	Male	Chem	22	2014	Male	16	Chem.	B	Midwest
3	Female	Mech.	24	2015	Male	22	Auto.	C	Midwest
4	Male	Elec.	27	2011	Male	40	Auto.	C	Midwest
5a	Male	Chem	22	2015	Male	19	Chem.	B	Southwest
5b	Male	Chem	22	2015	Unk.	14	Chem.	B	Northeast
6	Female	Chem	20	2017	Male	16	Paper	D	Midwest
7	Female	Chem	22	2015	Male	39	Chem.	B	Southwest
8	Male	Elec.	23	2014	Male	18	Auto.	C	Midwest
9	Male	Chem	24	2015	Male	22	Chem.	B	South
10	Female	Civil	23	2014	N/A	N/A	Chem.	B	Southwest

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Data collection occurred from January 2016 through May 2016 and consisted of a *macro-study*, with 12 participant pairings, and a *micro-study*, with 4 participant pairings.

Macro-Study Data Collection

The macro-study data collection process consisted of two on-line surveys (study start and end) for both engineers and managers, and diaries/weekly updates for the engineers.

Surveys

The engineers' survey consisted of 13 questions, which were divided into 6 general topics: preparation to communicate in industry, definition of effective communication, forms and frequency of communication, intended audiences, effectiveness as a communicator, and demographics. Questions were adapted from studies of workplace communication practices (e.g., Aller, 2001; Anderson, 1985; Kreth, 2000). Many questions asked of engineers were also asked of managers from the perspective of their perceptions of the novice engineer's communication (e.g., definition of effective communication and its importance, effectiveness of their engineer's communication, forms and frequency of communication, intended audiences). In addition, managers were asked about the types of feedback or training they provide their engineer, potential consequences of poor communication skills, and demographics. The surveys were designed using Qualtrics Survey Software and consisted of 5-point-Likert scale statements, multiple-choice questions, and open-form responses.

Weekly updates

All engineers completed weekly updates, akin to *behavior diary studies* that request participants to document their behavior as they perform activities (Goodman, Kuniavsky, & Moed, 2012, pp. 245–246; Spinuzzi, 2013, p. 124). The engineers were geographically located in several regions throughout the United States (seven Midwestern states, three Southwestern states, one Northeastern state, one Southern state); therefore, email with Microsoft Word attachments was used to request and collect the updates. The engineer was typically emailed the writing prompt at the start of the week with the request for a response within the week. The prompts included the

same questions each week, which were framed through a rhetorical lens to capture various aspects of the communication activity, including context, purpose, genre, intended audience, technology or mode used, and frequency.

Micro-study Data Collection

The goal of the *micro-study* was to strengthen the quality of the data by conducting contextual inquiry of the workplace and by triangulating the methods and the participant viewpoints. Framed by three guiding principles—(1) the data gathering takes place in context of users' work, (2) the people at the inquiry form a partnership, and (3) the inquiry is based on focused concerns rather than on specific questions—contextual inquiry can provide a rich perspective regarding how the worker(s) operate as they conduct real work (Raven & Flanders, 1996). During contextual inquiry, four kinds of information can be gathered, including (1) tools used, (2) sequences of actions, (3) participants' methods of organization, and (4) interactions with others (Goodman et al., 2012, p. 233, citing Beyer & Holtzblatt's framework). Four pairings participated, with visits lasting 3–5 hours. With care toward reducing self-reporting bias from surveys and updates, the engineers' responses were reviewed for any responses that needed clarification. Semi-structured interviews were conducted with managers, consisting of questions to clarify their responses to the survey and observations made during the visit.

Data Analysis Methods

The data were analyzed as two groupings: (1) communication practices and (2) perceptions of communication and areas for improvement. Quantitative data collected from surveys was exported from Qualtrics into Excel where mean values, ranges, and counts were determined for the scale and multiple-choice questions. Qualitative data collected from surveys, updates, and contextual inquiry were imported into and coded in NVivo 11.2.2 for Mac, using provisional and descriptive coding approaches (Saldana, 2013). Coding and analyzing the data was fairly straightforward because of how the questions were designed. The responses regarding the communication practices fit into pre-determined codes, such as purpose, genre, frequency, audience, modality, and technology. However, what was lacking

was an appreciation of the exigency and motivation for the communication. Therefore, asking, “Why is the engineer preparing xyz?” allowed for a higher-level coding framework to emerge, which were the five PMI project management phases.

As background, the Project Management Institute, Inc. (PMI), a not-for-profit professional membership association, has almost 3 million members and 650,000 certified practitioners worldwide through their 8 exam-based and experienced-based certification options (PMI, 2018). PMI defines project management as “the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements” and has defined five process phases within the project life cycle (PMI, 2013):

1. Project Initiation: “processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase”
2. Project Planning: “processes performed to establish the total scope of the effort, define and refine the objectives, and develop the course of action required to attain those objectives”
3. Project Execution: “processes performed to complete the work defined in the project management plan to satisfy the project specifications”
4. Project Monitoring and Controlling: “processes required to track, review, and orchestrate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes”
5. Project Closing: “processes performed to conclude all activities across all Project Management Process Groups to formally complete the project, phase, or contractual obligations”

Table 2 shows categories of the engineers’ communication practices, including its purpose (project management, project research and analysis, meeting), audience, genres, communication modes, and media forms.

Table 3 shows categories developed for the perceptions of communication and areas to improve.

The results are presented in two sections: first, the communication practices in project management, using the PMI framework are presented; second, the perceived areas of improvement are presented.

Results: Communication Practices in Project Management

During data analysis, a major theme that emerged was project management communication activities, such as planning project activities, providing or soliciting updates on project activities, coordinating or facilitating a meeting or training session, and documenting and disseminating meeting discussions. As shown in Figure 1, the Project Management Institute’s (PMI) five phases of the project life cycle provided a framework for further analyzing these activities (PMI, 2013).

Phase 1. Project Initiation

The Project Initiation phase consists of “processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase” (PMI, 2013). Only one engineer (P3) reported in her survey that she actively recruits customers to offer her services for new projects. Other engineers did not report in their survey or weekly update and were not observed initiating projects into the company workflow by defining stakeholders or defining initial project scope, timelines, and financial resources. However, one engineer (P6) did report in her weekly update that she received direction from her managers to start planning new projects that were already initiated.

Phase 2: Project Planning

The Project Planning phase consists of “processes performed to establish the total scope of the effort, define and refine the objectives, and develop the course of action required to attain those objectives” (PMI, 2013). This phase may “require the use of repeated feedback loops for additional analysis,” such as revisiting project timelines and budgets (PMI, 2013). As shown in Figure 1, the activities that were observed in this study were refining project scope, timelines, and budgets.

As one example of the communication that occurs during Project Planning, one engineer (P6) described in her weekly update a new project assignment that her manager asked her to plan and scope. As part of receiving this new assignment, the engineer needed to communicate with an external stakeholder (a contractor providing services to their company). The engineer emailed the contractor to request a telephone

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Table 2. Coding for engineers' communication practices in the workplace

Communication Practices	Codes and Sub-Codes
Project management activities	<p>Project initiation: Define project scope; Define stakeholders; Identify financial resources; Prepare initial timeline</p> <p>Project planning: Refine budget; Refine project scope; Refine timeline</p> <p>Project execution: Coordinate personnel, resources; Develop deliverables; Manage stakeholder expectations; Perform project activities</p> <p>Project monitoring, controlling: Monitor Key Performance Indicators (KPIs)</p> <p>Project closing: Prepare end-of-project deliverables</p>
Project research and analysis activities	<p>Interpersonal communication: Initiate or facilitate meeting; Assign tasks/action items; Propose design change; Train colleagues</p> <p>Intrapersonal communication: Analyze technical data/lab results; Review financial data; Review safety issues; Review standards/regulations</p>
Meeting communication activities	<p>Types of meetings: Daily/weekly/monthly; Design review; Impromptu; New project/kick-off; Project status/action steps/report-out</p> <p>Activities for meetings: Initiate meeting; Participate during meeting; Perform after meeting activities; Prepare for meeting</p>
Audience	<p>Internal audiences: Upstream (president, vice president, director, manager/supervisor); Midstream (engineer, sales, finance, maintenance, scientists, production); Downstream (receptionist, operator/technician, interns)</p> <p>External audiences: Contractors; Customers; Legislators, government; Outreach activities; Vendors</p>
Genre	<p>Electronic communication: Email messages</p> <p>Written communication (project management): Meeting minutes; Pre-printed forms (trial requests, work orders, quotes); Progress report (slides/memo); Task list; Timeline</p> <p>Written communication (project analysis): Advertising/marketing material; Journal articles; Letter; Patent applications; Poster; Proposal; Report (feasibility, laboratory, trip, product evaluation, A3); Scripts; Specifications; Spreadsheet data; Technical instructions; Web pages</p> <p>Oral communication: Formal presentation; Informal presentation; Pitch presentation; Poster presentation; Project report (oral)</p>
Hardware used to communicate	<p>Written communication: Computer, laptop, monitor; Flip chart; Paper, pen, pencil; Telephone w/texting; Whiteboard</p> <p>Oral communication: Computer, laptop, monitor; Conference call system; Telephone; Walkie-talkie</p> <p>Visual communication: Computer, laptop, monitor; Flip chart; Presentation equipment; Video recorder; Whiteboard</p> <p>Electronic communication: Computer, laptop, monitor</p>
Software used to prepare communication	<p>Video, conference call: Lync; Skype; WebEx</p> <p>Email: Outlook (or not specified)</p> <p>Calendar: Outlook</p> <p>Drawings: AutoCAD; Visio</p> <p>Data analysis: Excel</p> <p>Presentation: PowerPoint</p> <p>Word Processing: Word</p>

Table 3. Coding for perceptions of engineering communication in workplaces

Perceptions	Codes and Sub-Codes
Characteristics of effective communication	<p>Able to interact with varied audiences: Address audience needs (upstream, midstream, downstream, external); Use audience preferred medium (memo, reports, email, text/IM, phone, face-to-face, visuals)</p> <p>Able to apply communication strategies: Structure, focus message; Use clarity, concision; Use professional tone, level</p> <p>Able to apply interpersonal skills: Deliver information confidently; Work as a team</p>
Consequences of ineffective communication	<p>Engineer's responsibilities and career opportunities would be limited: Not being reliable; Not selected to lead projects; Limited chances for promotion; Limited chance for foreign/international project assignments</p> <p>Loss of trust amongst internal and external audiences: Frustration for customers; Loss of business; Loss of trust from customer, boss, peer</p> <p>Negative impact on project: Project activities; Timeline; Budget</p>
Areas for improvement	<p>Provide "big picture" context prior to technical details: Need context: Too much focus on technical details</p> <p>Develop clear, appropriate written content and visual content: Clarify wording; Clarify technical descriptions; Improve readability; Modify graphs</p> <p>Provide confident, timely content to audience: Address difficult situations; Provide information confidently; Provide information timely</p> <p>Increase interactions with technicians and operators: Engineers need encouragement to interact</p>
Support and training resources	<p>Public speaking: In-person training; Networking events; On-site and off-site groups (Toastmasters)</p> <p>Negotiation: In-person training; Off-site training (PowerTalk)</p> <p>Confidence development: In-person training</p>

conference call. During this conference call, the engineer raised concerns about a proposed existing solution (proposed by a more senior-level engineer) that would temporarily address a safety hazard but was not addressing the root cause of the problem. As an action item from the meeting, the engineer developed a potential solution and a plan for executing the solution. The project plan included a timeline, the perceived risks associated with the project, potential solutions to the problem, and the cost savings to support the idea. The engineer would then email the plan to their manager and, eventually, the company employees who handle the company's financials.

Another engineer (P5a) reported in her weekly update that she was responsible for planning a new design phase of a capital plant project. This engineer was tasked with ensuring that the project's scope and equipment design requirements aligned with the needs of the facility and the operators. Through face-to-face meetings with the stakeholders; including the engineering

design group, the plant and operations managers, and the capital project/asset managers; the engineer prioritized the new phase of the project based on the safety issues and the annual capital budget. The engineer also presented the overall project status, timeline, and budget to the project team in a design review meeting.

Phase 3: Project Execution

The Project Execution phase consists of "processes performed to complete the work defined in the project management plan to satisfy the project specifications" (PMI, 2013). Activities within this phase include "coordinating people and resources, managing stakeholder expectations, as well as integrating and performing the activities of the project in accordance with the project management plan" (PMI, 2013). Because of the iterative nature of project management, the phases do not always function in a linear fashion; therefore, the Project Planning phase can be revisited during the Project Execution phase.

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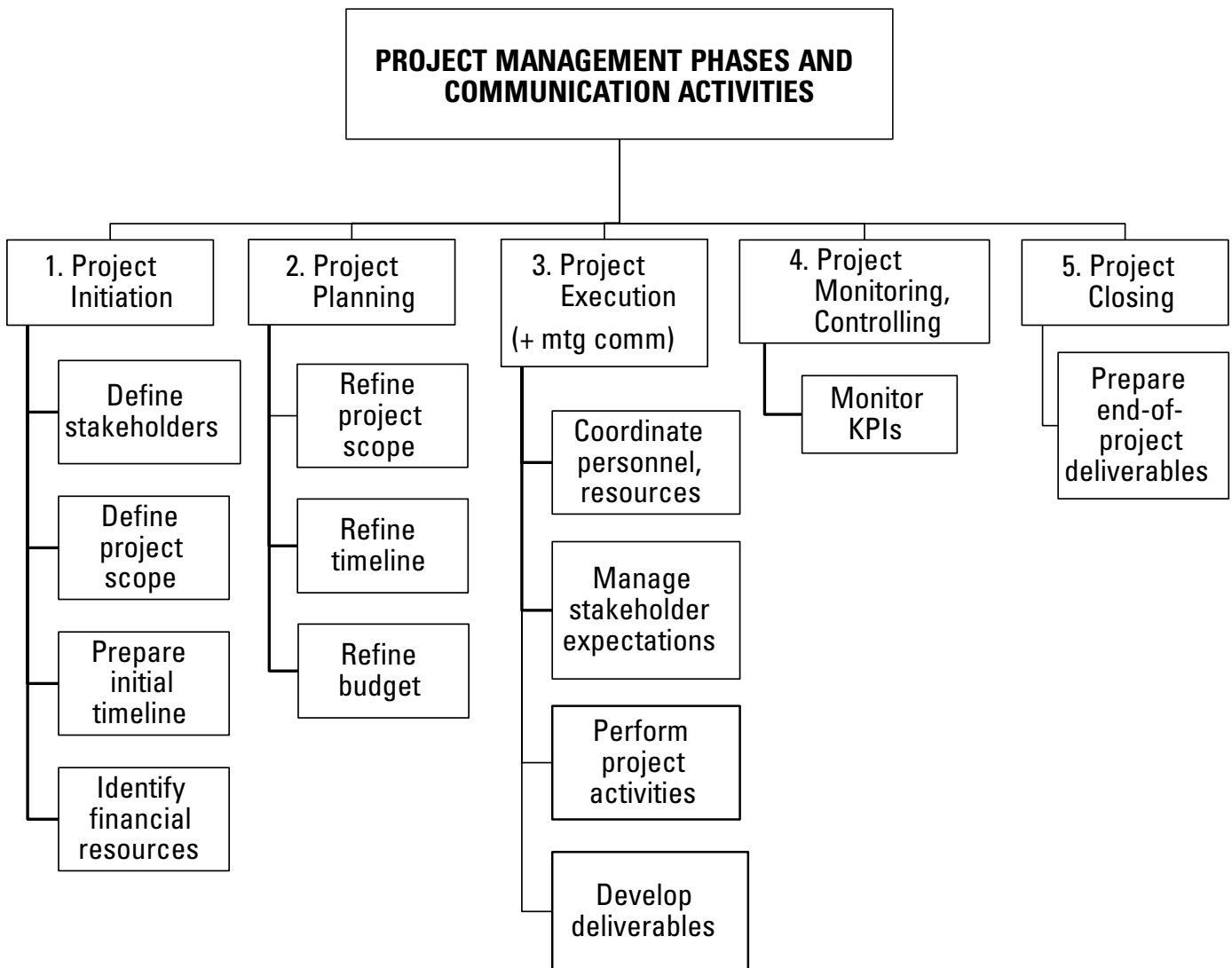


Figure 1. Project management phases and engineer communication activities in the workplace

Coordinating personnel and resources

The engineers reported being responsible for coordinating personnel and resources during Project Execution and that they were responsible for the appropriate project personnel attending a meeting, initiating and organizing the meeting, and facilitating the meeting. Figure 2 shows a visual representation of the meeting communication types and activities.

To execute their projects, the engineers relied on email communication. From the surveys, both the engineers and the managers rated email messages as having the highest frequency of preparation over all types of communication. (Engineer final survey: $n = 11$, $M = 4.91$, $SD = 0.30$; Manager final survey:

$n = 10$, $M = 4.60$, $SD = 0.52$). Within the weekly updates, the main context when using email was during project management activities, specifically when performing project activities and initiating or facilitating various types of meetings, such as daily/weekly/monthly meetings, project status meetings, design review meetings, new project/kick-off meetings, and impromptu meetings.

The following example describes one engineer's (P1) experiences during meeting activities, specifically how email messages supported these activities. (Additional support of these experiences as reported by other engineers and managers are also addressed.) The engineer (P1) reported that she had scheduled and

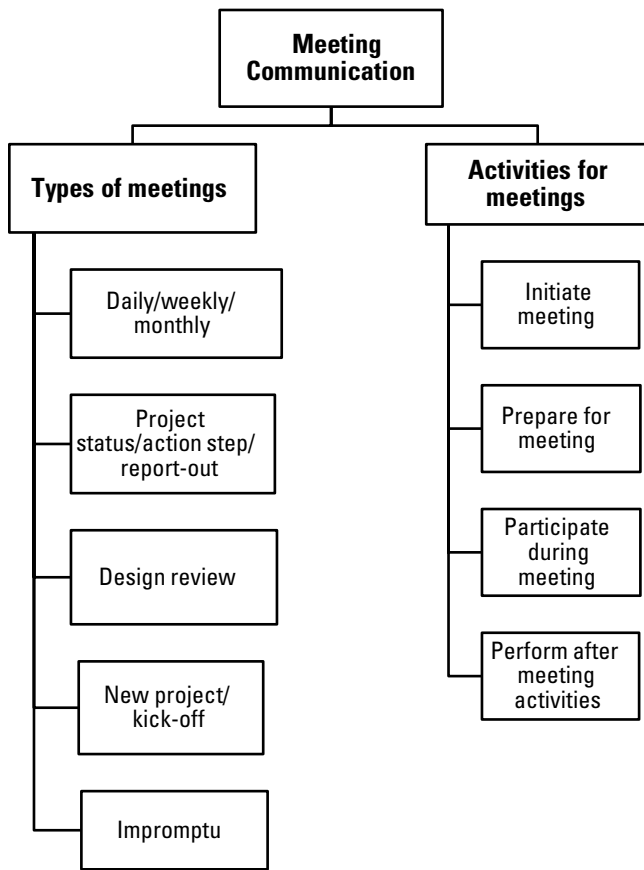


Figure 2. Meeting communication: Types of meetings and activities for meetings

facilitated an “action-step” meeting with her colleagues. However, prior to deciding to convene this meeting, the engineer had to decide whether to discuss the project issues via email with the project team or initiate a face-to-face meeting. Because of the urgency of the issues, the engineer decided to initiate a meeting via email one day in advance to have time to prepare. This finding was consistent with a manager’s comment (P2a) that he encourages engineers to forego email messages/correspondence for project discussions and opt for in-person or Web conference meetings; and, three other engineers (P3, P4, P6) also mentioned that they have found using the phone to schedule a meeting to be much simpler than starting an email chain. Two other engineers (P2a, P3) reported using this approach and only used email in non-emergency and low-urgency situations, such as sending work products/deliverables or sending requested information. Another engineer (P6) was observed in a contextual inquiry preparing an email message to her manager by attaching a project

update report. Another engineer (P2a) also reported that email messages were used by his colleagues as “a sort of log for their own records” regarding the project activities.

Within the engineer’s (P1) email message that initiated the meeting with the project team, the engineer also provided the team an opportunity to prepare for the meeting by attaching an agenda that outlined the scope of the meeting and a bullet point list of topics to discuss. When the attendees met, because the engineer (P1) was the host, she took notes while participating in the meeting and emailed these notes as meeting minutes and next steps to the attendees after the meeting.

In the contextual inquiry, all four engineers were observed and/or interviewed regarding their preparation of email messages. For example, an engineer (P6) attended a meeting with a logistics/scheduler to discuss the logistics of testing and manufacturing a new chemical formula or “recipe” for a desired product. This engineer was also responsible for coordinating a training session with process engineers and her manager. Another engineer (P1) reported via interview that it was common for new engineers, especially if a Product or Program Manager, to lead meetings, and the engineer had been leading meetings since starting at the company. However, the engineer did bring in a more experienced engineer to sit in on phone calls in case of “push back” from the customer. Collectively, the engineers reported using email to initiate meetings with colleagues, to provide materials to colleagues to prepare for the meetings, to document the meeting conversations during the meeting, and to disseminate the meeting minutes and action items to colleagues after the meeting.

Managing stakeholder expectations

The stakeholders involved with the engineers’ projects were wide ranging, including upstream, midstream, and downstream as internal audiences and customers, and vendors as external audiences. To manage the stakeholders’ expectations of the project activities, the engineers reported in their weekly updates that they initiate or attend meetings that will review the status of their projects on a daily, weekly, and monthly basis.

Performing project research and analysis activities

The engineers reported activities that are related to project research and analysis activities, including

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interpersonal or intrapersonal communication activities. Interpersonal activities (as reported in the weekly updates or observed in the contextual inquiry) are when the engineers were interacting with other people to accomplish the project's goals, which included (1) initiating or facilitating meetings, (2) assigning tasks or action items, (3) proposing design changes, and (4) training colleagues.

- Initiating or facilitating meetings. All engineers reported in their weekly updates or were observed initiating or facilitating meetings. The types of meetings were daily, weekly, monthly, and impromptu meetings.
- Assigning tasks or action items. Several engineers (P1, P2a, P6) reported in their weekly updates or were observed assigning tasks or action items. These activities were usually reported by the engineers as being part of the meeting activities when planning for next steps on the project.
- Proposing design changes. Several engineers (P2a, P2b, P5a, P7, P9) reported in their weekly updates that they were responsible for proposing design changes to their colleagues. As an example, one of these engineers (P2b) reported that he needed to prepare a proposal for solving a problem with a primary reactor. This problem was discovered during a walk-through audit of the plant with an Environment, Health, and Safety (EHS) specialist from the company. By sketching a Piping and Instrumentation Diagram (P&ID), the engineer identified a potential solution to this problem by adding an additional piece of equipment. In a conference room, the engineer verbally presented his proposal, including the sketch, to the plant manager, a plant engineer, and the EHS specialist. As another example, one engineer (P9) was responsible for researching options and developing implementation plans for a new stretch-wrapping machine to secure her product drums to pallets. Every day, the engineer communicated with various people inside the company, such as logistics supervisors and personnel, manufacturing representatives, and technical engineering managers. The engineer also communicated with outside vendors through email messages.
- Training colleagues. Only one engineer (P6) reported in her update that she was responsible for training colleagues. This engineer trained the process

engineers and operations leaders on using a GoPro video camera. The process engineers and operations leaders would use the camera to record plant activities and to study any problems; they could then develop countermeasures to these problems. In addition to providing a hands-on demonstration and an opportunity to “play with” the camera, the engineer also developed a procedural manual for how to use the camera. The manual included many pictures and described very specific details for operating the camera's features.

Intrapersonal activities occurred when engineers worked alone to accomplish project goals, which included (1) analyzing technical data and/or laboratory results, (2) reviewing journal articles, (3) reviewing standards and/or regulations, (4) reviewing financial data, and (5) reviewing safety issues.

- Analyzing technical data and laboratory results. Two engineers (P1, P6) reported (in their updates) and were observed analyzing technical data and laboratory results.
- Review standards and/or regulations. One engineer (P2b) reported (in his updates) and was observed reviewing industry consensus standards. The engineer was developing a best practices guide for creating Piping and Instrumentation Diagrams (P&ID). When reviewing existing diagrams, the engineer was confused as to how to notate a particular measurement on a piping line. The measurement could either be the pipe's nominal pressure rating or the corrosion allowance for the pipe. The engineer referred to the American Society of Mechanical Engineering (ASME) standards but also emailed with a company expert in P&ID documentation to discuss many different standards.
- Reviewing financial data. Three engineers (P5a, P6, P9) reported (in their updates) reviewing financial data related to their projects. As one example, one engineer (P5a) addressed his preparation for a meeting between the project team and the regional controlling team. The meeting's purpose was to gather and review financial information for their value chain analysis. The engineer reviewed the financial data, prepared informal notes, and provided a verbal assessment in a face-to-face meeting.
- Reviewing safety issues. Several engineers (P2b, P3, P5a, P6, P9) reported (in their updates)

needing to review safety issues with their products or processes. As one example, an engineer (P3) reported that her customer had requested a status update on the investigations related to warranty parts, a determination for why the parts failed, and a determination for who was responsible for the part failure. In managing the stakeholders' expectations, this engineer performed the research and also prepared a Process Failure Modes Error Analysis (PFMEA) form.

Develop deliverables

All engineers reported (in their surveys and/or updates) or were observed developing deliverables, such as email messages, presentation slides, and meeting minutes. The typical project management communication included meeting minutes, task lists, timelines, progress reports (slides, memos), and pre-printed forms (trial requests, work orders, quotes). Of the project analysis genres, the most commonly reported genre was spreadsheet data, as seven engineers (P1, P2a, P4, P5a, P5b, P6, P9) reported or were observed preparing or reviewing this genre. The spreadsheets included testing trial data, production data, and accounting or financial data. Several engineers (P2a, P2b, P5a, P7, P9) reported being responsible for developing proposals for equipment design changes or additions to their colleagues. Although the engineers did not report preparing specifications, three engineers (P1, P3, P5b) identified situations when they use specifications in their project analysis activities. As an example, one engineer (P1) prepared requests for product specifications through her company's electronic pre-printed forms. Another engineer (P3) used specifications to support conversations with customers. Another engineer (P5b) needed to provide equipment specifications as reference material at design review meetings. Only one engineer (P6) prepared technical instructions for colleagues; these instructions were for how to use a GoPro camera. The engineer included many pictures to accompany the manual and described very specific details for operating the camera's features. The engineer reported that having these details would be the most helpful to colleagues, especially if they were not able to speak with an engineer for clarification. Finally, no engineers prepared or used feasibility or laboratory reports.

As addressed later in the Project Closing phase, two engineers (P2a, P5a) prepared or delivered a formal

oral presentation, which was their end-of-rotation presentation. Also, as mentioned earlier regarding meeting communication, many engineers presented oral progress reports on their project activities.

Phase 4: Project Monitoring and Controlling

The Project Monitoring and Controlling phase consists of the "processes required to track, review, and orchestrate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes" (PMI, 2013). As described above in "Managing Stakeholder Expectations," several engineers were involved in project status meetings with internal and external audiences. These meetings consisted of reviewing project timelines, presenting results from testing or research activities, and proposing changes to the project scope or timeline, as necessary. One engineer (P5a) specifically reported his involvement in monthly meetings where he monitors many aspects of the projects, including a review of high-profile accidents/incidents, a review of process safety Key Performance Indicators (KPIs), and a review of internal audit/inspection of housekeeping, safe work permits, and safety work order progress.

Other engineers also described specific examples of when they needed to initiate and execute changes to their work. For example, one engineer (P1) had identified a new technology to address a customer's need, even though the customer had already agreed to the original plan. The engineer needed to convince her project team and the customer that this new approach was valid to pursue.

Phase 5: Project Closing

The Project Closing phase consists of the "processes performed to conclude all activities across all Project Management Process Groups to formally complete the project, phase, or contractual obligations" (PMI, 2013).

Three engineers (P2a, P5a, P7) prepared project closing documentation. Two engineers (P2a, P5a) were completing their 8-month rotation assignments and were required to summarize their project work for other employees in the company, including plant supervisors, program managers, and other rotation engineers. This communication included a 30-minute presentation and an information project handoff memo that identified the problems and solutions developed on the project and lessons learned. However, these projects

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continued after the engineers left their rotation, and these communication activities were not representing an official closing of the project but rather the engineers' involvement on the project.

Results: Improvement for Project Management Communication

To determine areas of improvement, the engineers and managers were asked to report how the engineers could improve their communication skills. All managers reported (surveys, interviews) that they or the company provide novice engineers with training and support with their communication skills. Collectively, the feedback was constructive criticism rather than major deficiencies in their communication abilities. Specific themes related to the types of feedback provided to the engineers were needing to (1) provide 'big picture' context prior to technical details; (2) develop clear, appropriate written and visual content; (3) provide confident, timely content to the audience; and (4) increase interactions with technicians and operators. In addition to addressing this feedback, the majority of managers (n=10) reported the availability of computer-based courses and/or in-person workshops as support resources sponsored by their company or external companies. Topics included how to

- improve their preparation of documentation,
- manage conflict,
- work as a team,
- negotiate,
- develop confidence, and
- develop their public speaking and presentation skills. (e.g., Toastmasters).

Provide "Big Picture" Context Prior to Technical Details

One engineer (P2b) and several managers (P2a, P4, P8) responded in their surveys that engineers should provide a "big picture" context prior to describing the technical details in both written and oral communication. The engineer (P2b) reported that he received feedback from his manager regarding how he tended to focus on the technical details and can "get hung up on small details that do not matter in the long run." Similarly, one manager (P2a) mentioned that his engineer, who is the same engineer as P2b, had prepared a written project update to a unit manager

but "dove right into the details" rather than provide "context and scope." The manager (P2a) explained to the engineer that, although the unit manager would have knowledge of the project, the document needed to remind of the context prior to presenting the details. Furthermore, this manager provided feedback to the engineer that the purpose of providing the context was for "painting the picture of the situation." This manager (P2a) also provided similar feedback to his engineer regarding their oral presentation content for a mixed audience of technical and non-technical attendees. For this situation, the manager provided "a good deal of feedback on how to tell a story" during his presentation to reach all audiences.

Develop Clear, Appropriate Written and Visual Content

Several managers (n=4) provided feedback to engineers that focused on developing clear, appropriate written content. The types of feedback provided to engineers included needing to clarify wording and descriptions of technical information to improve the readability of the document and to modify visuals and graphs. One manager (P5a) provided feedback to his engineer regarding the appropriateness of the wording used in a document (a risk assessment). The main purpose of the feedback was for the document to include the company's key terminology:

Our new engineer had to perform and document a risk assessment. Prior to issuing the risk assessment, 2 different people reviewed the assessment to ensure that it was worded properly. Where changes were made there was a discussion on why. We also commented on the other parts of the document to re-enforce the why making the points was necessary. The modifications were mainly to ensure that they hit on key terminology for our company. (Manager P5a)

One manager (P8) suggested that the document needed more clarification regarding the content being presented:

Review of information received from the customer regarding technical specifications for the project. My feedback was only to clarify some points described regarding interpretation of the specification. (Manager P8)

Another manager (P2a) praised the technical content of the document (a controls outline for a reactor) but still needed to provide feedback to the engineer regarding the readability of the document:

The controls outline for the . . . reactor. I provided a good deal of feedback on readability of the document. All of the technical was there, that was not the problem. (Manager P2a)

Another manager (P6) praised the report written by the engineer but asked the engineer to provide feedback for modifying the graphs:

[engineer] prepared a report for a trial [they] had executed on our equipment. This was [their] first trial and report. I had [them] modify some of the graphs but everything else met expectations. (Manager P6)

Provide Confident, Timely Content to the Audience

Some managers provided feedback (n=4) to engineers regarding being more confident and comfortable when presenting information to their audience. Similarly, one engineer (P9) reported that he has sometimes received feedback that he is too “hesitant” and needs to “just pick up the phone or walk over and talk to people whenever I can, don’t wait.” Example manager quotes regarding this type of feedback are the following:

The feedback is usually more about being confident and thorough. If they do not sound confident the customer or receiver will sense it. (Manager P1)

In discussions with the engineer, the topic of increasing the effectiveness of the verbal communication by being more forceful in the decisions and recommendations from the test results. (Manager P7)

One manager (P1) provided feedback to her engineer regarding the importance of confidently providing timely content to the audience. The feedback was specifically regarding content that was “not so good news” or “bad news” to the audience. The manager commented that avoiding a difficult situation “only makes it worse,” and the engineer should “address

tough topics promptly.” Prompt communication was identified by the manager as being able to “reply within minutes or a[n] hour, but no later than 24 hours.” This manager also suggested that even if the engineer did not have “the answer” to the inquiry, she should “acknowledge the receipt of the note and say when next steps can be provided.” When confronted with a difficult situation, the manager emphasized the importance of not allowing “someone to talk you in to doing something that is wrong or does not make sense.” In this situation, the manager suggested that the engineer should request help from her manager.

This manager’s engineer (P1) also commented that her manager suggested training classes that focused on public speaking and negotiation. The manager had told the engineer that she was “too quiet and need[ed] to be more confident” in meetings. This engineer reported that these classes were helpful in improving her communication and believes her communication “will improve over time as I become more comfortable.”

Increase Interactions with Technicians and Operators

As mentioned previously, the engineers reported and were observed interacting with technicians and operators in their job, even though their coursework did not emphasize this potential audience. In one manager’s (P2b) survey, he identified interactions with technicians as a “gap” in the skillset of the novice engineer, given that most novice engineers have only worked with other engineers until they are employed; therefore, interacting with operators becomes a skill learned on the job:

A gap that typically exists is engineers working with operators (plant floor personnel) on specific problems. Many new engineers have only worked with other engineers. Having the ability to relate to plant floor personnel is typically learned on the job, but can be very valuable if the new engineer already has this experience. (Manager P2b)

One manager (P2b) mentioned in his interview and another manager (P5a) mentioned in his survey that he has needed to provide feedback and encouragement to his engineers to communicate with this audience, and, after this encouragement, both managers mentioned that the engineers were able to have positive interactions.

Novice Engineers

Discussion

The present study was designed to research workplace communication practices of novice engineers and the perceptions of their managers, and to specifically bridge gaps between those findings and classroom instruction of engineering students. Although this study was not designed to specifically explore project management communication, this theme emerged as a framework for describing their activities. Therefore, the main takeaway from the results is that novice engineers apply their technical knowledge and communication skills to manage projects and facilitate activities toward the project goals.

Consistent with James Trevelyan's (2014) text, *Making of an Expert Engineer*, the findings from the present study show that the novice engineers utilize project management communication and are involved—in some capacity—in all phases of the project life cycle, ranging from project initiation through execution and closing. These communications and activities are not reserved only for more experienced engineers. Although numerous studies have identified engineer communication practices, such as the range of purposes, audiences, genres, and technologies, very few studies have connected the dots as clearly as Trevelyan has. The present study, therefore, supports Trevelyan's claim that engineers fit into a technical and social context, and they communicate as project managers. (More research into whether the engineers have awareness of this fit would be interesting to pursue, as well as their awareness of the project life cycle steps and PMI framework.)

Although not unique to project management communication, the areas of improvement offered by managers and engineers can be categorized into four themes, all of which are consistent with findings from other studies of alumni and engineers and managers. On the highest level, the themes are related to awareness of the audience attitudes and values (Norback et al., 2009). For example, the first theme was to provide “big picture” context to the audience prior to the technical details. Rather than starting with the details of the project, managers suggested that the engineer “tell a story” to provide a larger picture of the project. From other published studies, having this awareness of and sensitivity to audience needs is essential when communicating with a decision-making

audience, such as upper management and executives or a global audience who may not have the familiarity of the project (Martin, Maytham, Case, & Fraser, 2005; Nicometo, Anderson, & Nathans-Kelly, 2010; Norback et al., 2009).

Audience awareness is also relevant in the second theme of needing to provide clear and appropriate written and visual communication. Consistent with other studies, being concise and direct, and using the appropriate jargon and conventions is fundamental to communicating effectively (Aller, 2001; Conrad, 2017; Nicometo et al., 2010; Norback et al., 2009).

The third theme is providing confident and timely content to the audience. Similar to other studies, being able to demonstrate interpersonal skills were reported as essential aspects of communicating effectively, such as being confident and assertive at meetings, being proactive when information-seeking and sharing, and being able to initiate conversations with others using proper etiquette in-person and via email (Nicometo et al., 2010; Norback et al., 2009; Sageev & Romanowski, 2001).

The fourth theme is increasing interactions with downstream audiences, such as technicians and operators. As an engineering student, an engineer may not have had an opportunity to work with non-students on classroom projects but may have had exposure to the multi-disciplinary and multi-generational workplace in an internship or co-op. In the workplace, engineers will need to interact with all levels and must learn strategies to handle and resolve interpersonal conflicts (Dannels, Anson, Bullard, & Peretti, 2003) to be an effective listener and understand “voices” different than their own—clients, customers, teammates, and a non-engineering audience (Clark, Sheppard, Atman et al., 2008; Leydens & Lucena, 2009; Nicometo et al., 2010; Norback et al., 2009; Sageev & Romanowski, 2001).

Future Research

As demonstrated by the results of the present study, the novice engineers served in a project manager role almost immediately upon graduation. However, without a larger sample size and differing industries and companies, it is difficult to generalize. A larger study focused specifically on the novice engineer and project management communication activities would be helpful, including an analysis of the training and support needed to be effective communicators as

project managers. A wide-reaching survey of companies who hire novice engineers and/or managers who work with novice engineers could provide insight into current training and support resources that are used (or not used). Identifying the “best resources/practices” would be helpful for those who do not have training and support resources.

Although outside the scope of the present study (and perhaps challenging to study), the question of whether novice engineers are so different than other novice employees could be explored. One manager (P1) mentioned that “emotional intelligence” is a consideration when working with an engineer. The manager believes that an engineer’s ability to develop self-awareness of their actions and awareness of how they are perceived by others are very important to being successful when working with others. However, narrowly focusing on the novice engineer suggests that engineers may have unique social and personality characteristics, which does not seem to be a fair conclusion. Therefore, a study that explores whether novice employees in other disciplines (e.g., finance, construction, banking, etc.) are also provided with training and support resources, and which kinds, would be helpful.

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“Filling to Capacity”: An Exploratory Study of Project Management Language in Agile Scrum Teams

Erin Friess

Abstract

Purpose: This exploratory study investigates the project management (PM) language used by Agile Scrum team members at a software development firm within their Scrum meetings.

Method: The meetings from three sprints were audio-recorded and all spoken exchanges were transcribed. A codebook was developed to assess for meeting function PM language. A correspondence analysis assessed the association of Scrum meeting type and PM language.

Results: The results of this exploratory study suggest that the Scrum team members use PM language in somewhat ritualized ways, particularly when some of the PM language is deployed. The correspondence analysis also suggests five associations between certain meeting types and certain PM language.

Conclusion: This exploratory study provides a baseline of *in situ* Scrum-based project management upon which other studies may build, which may become useful as future studies may expand to include Kanban and Scrumban. It also suggests that while this Scrum-based group uses some PM language in expected ways (i.e., team maintenance is associated with kickoff meetings), other uses are unexpected (i.e., planning language is not associated with planning meetings). These differentiations from the ideal Scrum PM process suggest that future research is warranted.

Keywords: Agile, discourse analysis, project management, Scrum, exploratory study

Practitioner's Takeaway:

- Looking directly at the PM language used in Scrum meetings can be difficult, but it may be helpful to determine if Scrum teams are functioning in ways that run counter to Scrum practice.
- In these Scrum sprint meetings, the technical writer is primarily absent or silent. We need to consider whether technical writers should be part of the multi-disciplinary Scrum team or whether technical writers should work adjacent to but separate from the Scrum process.

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In their 2015 analysis of technical communication job postings, Eva Brumberger and Claire Lauer found that project management was one of the most commonly requested competencies across all the studied categories, only behind written communication as the most requested competency in job postings (e.g., Brumberger & Lauer, 2015). Yet, despite the need for a project management skillset, little research has taken place in technical communication to ascertain just what these skills are (Dicks, 2013). Perhaps this is due in part to the fact that project management (PM) is not an inherently technical communication endeavor but an endeavor pursued and researched by a host of other fields, including organizational management, organizational psychology, and software engineering.

Regardless of the field, PM research has tended to focus on prescriptive theories and strategies of how PM should occur, often based on anecdotal experiences or hypothetical situations (e.g., Allen, 2015; Hackos, 2007; Kister, 2016; Ryle, 2014; Snyder, 2014) or on research collected through self-reported means, such as interviews, focus groups, or surveys (e.g., Drury, Conboy, & Power, 2012; Drury-Grogan, 2014; Moe, Aurum, & Dybå, 2012; Rasnacis & Berzisa, 2017; Špundak, 2014). These anecdotal and self-reported data only enable us to learn what participants think as they look back on prior activities; they do not provide insight into what happens as the process of project management unfolds. This study addresses that methodological gap by investigating the actual spoken words exchanged by team members of an Agile Scrum group in their standard Scrum meetings. I chose to investigate a group that has actively worked in a firm-wide Agile Scrum environment for the past decade, because Agile Scrum is a common PM structure for both software and non-software firms (*The State of Scrum Report*, 2017; Stringer, 2016). Furthermore, Scrum is an established framework as well as an increasingly important process for technical communicators (Fox, 2013; S. Johnson, 2014; T. Johnson, 2017a, 2017b). By looking directly at the PM and Scrum language used by the team members in three sprints, we can better assess how technical communication should be viewing and analyzing PM as a whole and Scrum in particular.

Specifically, this exploratory study of the PM language of team members at a software engineering firm aims to answer the following research questions:

RQ1: What kinds of interactionary project management language are used in Scrum meetings?

RQ2: When is PM language used in Agile Scrum meetings?

This project, by looking at what Scrum team members actually say and do, rather than what Scrum team members self-report to say or do, provides particular insight that isn't possible through other research mechanisms. As an exploratory study, its purpose is not to identify definitive practices for Scrum or project management but to identify "patterns in data that one might not predict or assume" (Lam, 2016, p. 301). Such patterns may inform future research so that further self-reported or experimental studies might pursue areas of identified merit (Lam, 2016). Additionally, as an exploratory study, this project presents a baseline so that others who repeat the study may identify commonalities and differentiations across organizations. Further, this study may encourage practitioners to evaluate their own language usage in project management conversations.

In what follows, I will first conduct a literature review of PM and Agile Scrum, followed by a description of my discourse-driven methodology. I will then explore the findings and discuss the implications of the findings.

Review of Literature

In this literature review, I will first present an overview to Agile and Scrum before discussing Agile and Scrum from a project management perspective.

Agile and Scrum: An Overview

Agile and Scrum are frameworks for software development that, over time, have also been adapted to work in nearly any organizational environment (Conforto, Salum, Amaral, da Silva, & de Almeida, 2014; Larson & Chang, 2016; Waldock, 2015). Agile was created in the 1990s as a lightweight software development alternative to the heavyweight "Waterfall" approach of the 1980s (Cobb, 2011). Waterfall consisted of a "series of sequential phases that have to happen in sequence, and each phase cascades into the next" (Cobb, 2011, p. 5). In other words, Requirements would pass on the product to Design, who, upon completion, would pass along the product to Development, who would then pass along the product

to QA, at which point the product would hopefully be ready to ship. Waterfall required much “upfront planning and control” with limited changes once the process began to ensure that the costs and schedule remained intact (Cobb, 2011, p. 5).

Agile removed much of that upfront planning and the sequential phases of work. Instead, Agile was presented as a “discipline that copes adaptively with rapid change through feedback learning loops that interactively create and incrementally deliver value” (Moran, 2015, p. 3). At the core of the Agile framework is that it “eschews specialists working to specifications, preferring instead to employ multidisciplinary and highly communicative teams that share their experiences and tacit knowledge in order to gain consensus regarding the solution” (Moran, 2015, p. 4).

Scrum is a particular Agile framework that gives structure to the general Agile principles and beliefs set forth in the Agile Manifesto (“Manifesto for Agile Software Development,” 2001). In a Scrum environment, work “is performed in short, timeboxed iterations, which usually range from a week to a calendar month in length” (Rubin, 2012, p. 2). Then in each iteration, called a sprint, “a cross-functional team does all of the work—such as designing, building, and testing—required to produce a completed working feature” (Rubin, 2012, p. 2).

Within each sprint, there are typically three defined roles (product owner, ScrumMaster, and team members) who typically iterate within the structure of 4–5 types of meetings (Rubin, 2012; Schwaber & Sutherland, 2017; Sims & Johnson, 2012; “User Stories,”). First, in the planning meeting, which sometimes is combined with the kickoff meeting, the product owner, who is responsible for collecting user stories and ensuring the most return on investment out of the sprint team, decides which user stories will be presented in a sprint. User stories are “short, simple descriptions of a feature told from the perspective of the person who desires the capability, usually a user or customer of the system” (“User Stories,” para. 6). Then, “the team members doing the actual work are the ones who decide how much work they can take on” (Sims & Johnson, 2012, p. 38). In other words, the product owner tells the team members what needs to be accomplished, but then the team members have autonomy in completing the user stories. In the kickoff meetings, the user stories are refined, the story points (i.e., an estimation of the

complexity of a particular user story) are assigned, capacity (i.e., the effort in terms of work hours) will be determined, and the ScrumMaster will be selected. The ScrumMaster is often a team member whose function, in addition to whatever their purpose is as a team member, is to help “everyone understand and embrace the Scrum values, principles, and practices” (Rubin, 2012, p. 185) and to remove impediments that may prevent team members from completing their user stories (Schwaber & Sutherland, 2017).

The daily stand-ups (sometimes called daily scrums) are 15-minute meetings scheduled and led by the ScrumMaster. In the daily stand-up, team members identify what they have done since the last stand up, what they will accomplish before the next stand-up, and any impediments in their way (Sims & Johnson, 2012). In the demo (or the sprint review), all stakeholders, including clients, view the outcome of the user stories (Sims & Johnson, 2012). And finally, in the sprint retrospective, the team dedicates time to “focus on what was learned during the sprint...and how that learning can be applied to make some improvement” regarding the internal Scrum process (Sims & Johnson, 2012, p. 43).

Ultimately, Scrum is a framework that attempts to better organize approaches to solving problems. Scrum is now the most common framework for Agile, with upwards of 89% of Agile firms employing Scrum (*The State of Scrum Report*, 2017).

Agile and Scrum from a PM Perspective

While Agile and Scrum were born in software development, their frameworks are now used across many fields and have been investigated empirically. Recent studies of PM that employ Agile and/or Scrum frameworks come from fields such as library science, information, IT, management, and engineering (Drury, Conboy, and Power, 2012; Dulock & Long, 2015; Kautz, Johanson, & Uldahl, 2014; Machado, Pinheiro, & Tamanini, 2015; Rasnacs & Berzisa, 2017; Stettina & Hörz, 2015). Many of these studies possess particular interest to this study. For example, Drury, Conboy, and Power explored how PM obstacles within Agile environments can sabotage an entire firm’s commitment to Agile (Drury et al., 2012). Serrador and Pinto found that the degree to which a team adhered to Agile principles during PM phases ultimately affected the perceived success of the project by all stakeholders (Serrador & Pinto, 2015). Stettina and Hörz found that

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the implementation and success of Agile PM at a lower level of a firm can enable successful implementation of Agile at a more global level (Stettina & Hörz, 2015).

However, these studies of Agile and Scrum, along with all other studies I found, save one, rely on self-reporting mechanisms, surveys, or interviews for data collection. Although these are appropriate mechanisms for assessing Agile or Scrum for PM, they may or may not accurately reflect actual Agile and Scrum practice and instead rely on the respondents to filter their perceptions of the process as they respond, usually after the fact. This methodological gap poses a problem for those who wish to understand how Scrum is actually used, rather than what respondents report on their Scrum usage. Only one study actually looks at a team conducting an Agile or Scrum sprint. In that study, the researchers observed every meeting during a six-week sprint, with field notes, not the spoken exchanges, being the object of analysis. In their observations, they found that geographic and cultural differences can affect the degree to which Agile can or will be followed (Embretsen & Hyder, 2017).

I found no study that investigated the actual spoken exchanges between team members within an Agile or Scrum environment. Discourse analysis “sheds light on how speakers indicate their semantic intentions and how hearers interpret what they hear” (Johnstone, 2008). Therefore, to address the methodological gap in the research, I aimed to evaluate the team’s use of project management from a discourse, rather than self-reflective, perspective to begin to understand how project management is carried out in a Scrum environment. Specifically, I aimed to identify both the kinds of PM language in Scrum meetings and when PM language is used in Scrum meetings in order to provide a methodological perspective other than self-reflection of how PM is used by team members in meetings.

Methodology

Broadly speaking, in order to answer my questions about what kind of PM language is used in Agile Scrum meetings and when that language is used, I audio-recorded and transcribed the meetings of Agile Scrum teams, I coded the language they used in these meetings for specific uses of PM, and I used discourse analysis and correspondence analysis to identify the relationship between the Scrum meetings and the PM language.

Again, the purpose of this exploratory study was not to identify the best practice of PM or Scrum but to identify a real (not idealized) practice of PM that could then be used to prioritize and improve future research and to provide a baseline for future comparative studies. In what follows, I will detail the methods for data collection, the participants, and the coding procedures.

Data Collection

I audio-recorded three sprints of a mid-sized U.S.-based software engineering firm. I received permission from the firm to audio-record the sprint meetings as long as I did not use any meetings in which clients participated. Thus, due to the NDA agreed upon with the firm, I was not able to record the demos or several daily standups, as both types of meetings often included clients. Therefore, I did not include any standups in my dataset. Although the firm does have teams dedicated to new product development, the teams I recorded were working on feature development for existing software products. Each team member signed an IRB-approved informed consent form and completed a brief demographic survey prior to the recording of the meetings. The IRB identified that I would be audio-recording the data, transcribing and anonymizing the data, and then coding the data based on the anonymous transcriptions.

The three sprints were recorded during a 10-week period. All three sprints took 5 weeks, with Sprint 1 occurring first followed by two concurrent sprints (Sprints 2a and 2b). Sprint 1 consisted of six meetings, Sprint 2a consisted of three meetings, and Sprint 2b consisted of four meetings that I was allowed to record. The total number of hours team members spent in the recorded meetings for these three sprints (minus the daily stand-ups and the demo) was about 15 hours. The average meeting length was 69 minutes. The longest meeting was 133 minutes, and the shortest meeting was 23 minutes.

This group worked within a relatively common Agile Scrum sprint structure. Although some firms that implement Scrum combine planning and kickoff meetings into one meeting, this firm had separate planning and kickoff meetings (Schwaber & Sutherland, 2017). The planning and kickoff meetings for this firm were organized and led by the designer assigned by the product owner to the sprint. The planning meetings broadly consisted of an

initial discussion of user stories, story points, and task assignments. The kickoff meetings typically followed the day after the planning meetings and refined the user stories, assigned story points, finalized task assignments, designated a ScrumMaster, and returned some user stories to the product backlog. Each day between the kickoff and the sprint demo, the ScrumMaster organized a daily standup. Daily standups were not to exceed 15 minutes. If there was any issue that appeared to exceed the parameters of the daily standup, the team members who were involved in the issue moved it from the stand-up meeting to what this team called a “maintenance” meeting (which is relatively uncommon in Scrum) (Schwaber & Sutherland, 2017). At the end of the sprint, the sprint conducted a demo for interested stakeholders. Planning meetings averaged 71 minutes, kickoff meetings averaged 77.5 minutes, maintenance meetings averaged 68 minutes, and retrospective meetings averaged 28 minutes.

Participants

The first sprint (Sprint 1) had 16 team members. The next sprint cycle consisted of two concurrent sprints (Sprint 2a and Sprint 2b). Members from Sprint 1 populated both Sprint 2a and Sprint 2b. Sprint 2a had a total of 13 team members with seven team members having been part of Sprint 1. Sprint 2b had a total of 14 team members with seven team members having been part of Sprint 1. Two high level members participated in all three sprints. A total of 27 unique team members populated the three sprints.

Job titles

The 27 team members held 9 different job titles: QA (10 team members), Developer (6), Architect (3), Designer (3), IT Engineer (1), Product Owner (1), Project Manager (1), Security Engineer (1), and Technical Writer (1). The breakdown of the job titles in each sprint can be seen in Table 1.

Group distribution

All meetings were held in a conference room at the firm’s U.S.-based headquarters. However, that statement is complicated by the fact that the team was geographically distributed. One developer worked remotely entirely from India. He would call in to the meetings from his workspace in India. All remaining team members worked from the US. However, the firm

also had a remote work policy available to most team members. This policy enabled team members to work from home three days a week; this policy was taken advantage of by most of the team members. Therefore, in many meetings, fewer than half the team members actually met face-to-face in the meeting room. While colocation of teams is perhaps desirable, it is common for Scrum teams to be geographically distributed (Schwaber & Sutherland, 2017; Woodward, Surdek, & Ganis, 2010). Team members were able to elect what days they would go into work, and thus there was no pattern of who met face-to-face and who did not. Further, on occasion, team members would be at the headquarters but would phone into the meeting from their desks so they could continue to work. During the period of my study, the percentage of team members meeting face-to-face in any given meeting ranged from 31% to 57%.

Coding Data

In order to assess the language used by the team during their sprints, I transcribed each meeting and then assessed the transcriptions for language related to PM language functionality. This codebook was based in large part on the hallmarks of language in the workplace explored by Holmes and Stubbe (Holmes & Stubbe, 2015). I used a modified grounded theory approach that I based on Holmes and Stubbe’s hallmarks while adding additional relevant codes as they emerged from the dataset (see Table 2 for a complete list of codes). Although this list contains items beyond the traditional

Table 1. Number of team members with each job title on each sprint

	Sprint 1	Sprint 2a	Sprint 2b
QA	3	6	3
Developers	4	2	3
Architect	2	1	3
Designers	2	1	2
IT Engineer	1	1	0
Product Owner	1	1	1
Project Manager	1	1	1
Security Engineer	1	0	1
Technical Writer	1	0	0

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nuts and bolts of project management, it does include items that prior research has suggested to be relevant for overall project success and, therefore, necessary for successful project management (Callahan & Brooks, 2004; Schulz, 2008). The unit of investigation was clauses, as spoken exchanges often do not take traditional sentence structures. This small unit of investigation also allowed for mutual exclusivity of the codes.

Table 2. Meeting functionality language

Agenda
Appreciation
Decision-making
Humorous diversions
Indicator of agreement
Indicator of dissent
Keeping on track
Knowledge exchange
Non-decision-making negotiations
Planning
Progress summary
Questioning
Request
Small talk
Suggestion
Team maintenance
Technology maintenance

After each meeting, I reviewed the codes and made modifications to redundant or muddled codes. After coding approximately half the dataset, I then conducted an inter-rater reliability assessment on the 17 codes defined by the codebook. An additional coder and myself independently coded a previously uncoded 10% of the dataset. The initial reliability of the PM functionality yielded a Krippendorff's alpha of 0.75, which indicates good agreement. After modifications to the codebook, a subsequent coding of a different 10% yielded a Krippendorff's alpha of 0.88, which indicates very good agreement. I then recoded all previously coded data as well as all uncoded data in accordance to the new codebook.

Results and Discussion

This exploratory study investigated the use of PM language in Scrum meetings by recording the actual

exchanges between team members in those meetings. Here, I will take a closer look at the results stemming from that study.

RQ1: What kinds of project management language are used in Scrum meetings?

The most common functions of the language were in the form of knowledge exchanges (36.3% of the clauses coded for functionality), questions (18%), team maintenance (15%), and indicators of agreement (14.9%). Given their commonality, it isn't surprising that every meeting had at least 12 occurrences of each of these functionalities. Furthermore, for the four types of Scrum meetings I observed, these four functions were the most common in every meeting. And in many ways, this result is not entirely surprising, as these mark specific ways in which the group was able to approach the user stories and make progress toward their state of doneness. It is perhaps surprising how proportionately little of the group's overall language was dedicated to planning. This may be because, according to the coding scheme, language related to team immediate, in-the-moment needs were coded as "team maintenance," while language related to future needs or action was "planning." Nonetheless, it is surprising that the language related to what the team needs to do in the future only made up 5.1% of the team's overall language use.

The least common usages were in the form of agenda items, introductions, non-decision-making negotiations, small talk, and progress summaries, with each consisting of no more than 1% of the coded clauses. Some of these functions are limited, because they are typically only put forth by the ScrumMaster, such as agenda items and introductions. Additionally, the ScrumMaster was typically the one who took the lead when it came to Technology Maintenance ("I don't think y'all can hear me," "I'm going to share my screen now"). Small talk may be limited due to the distributed nature of the team; indeed, nearly all off the small talk occurred between the team members who were co-located in the conference room. Only one small talk exchange took place between a distributed team member and a person in the conference room, and no small talk exchanges took place between two distributed team members.

RQ2: When is PM language used in Agile Scrum meetings?

In looking at the raw data of when the language is used, we find that planning meetings, both in total and on average, contained more language related to appreciation, planning, introductions, and technology maintenance than the other meetings. Kickoff meetings used more language related to agendas, requests, keeping on track, indicators of agreement, questions, and team maintenance than other meetings. These results are not entirely surprising, given that the point of planning and kickoff meetings is to identify what can be done during the sprint, how the work will be done, and what the goal of the sprint is (Schwaber & Sutherland, 2017). Thus, language related to questions, planning, and team maintenance makes sense. Further, technology maintenance was perhaps more of an issue in the kickoff and planning meetings simply because, typically, all members of the sprint joined the planning and kickoff meetings and the coordination of multiple technologies was complicated. Fewer members attended the maintenance meetings or the (supposedly required) retrospective meetings.

Maintenance meetings used more language related to humor, indicators of dissent, knowledge exchanges, progress summaries, and suggestions than the other meetings. Maintenance meetings were meetings that were established as issues arose in standups that would push the meetings to be longer than the expected 15 minutes. Therefore, language related to knowledge exchanges, dissent, and suggestion may be more apparent given the nature of the meeting. Retrospective meetings included more small talk than other types of meetings (although the overall usage of small talk was less than 0.2% of language used). For planning, kickoff, and maintenance meetings, knowledge exchanges were the most common type of PM language, while in retrospectives, indicators of agreement were the most common type of language.

To further analyze the data, I conducted a correspondence analysis (CA) on the data set to explore the relationship between the type of Scrum meeting and the PM language used by the group. CA is a “useful statistical method for analyzing and visualizing categorical data” (Lam, 2016, p. 299). Categories that contributed less than 2% of the data set were removed from the analysis (Lam, 2016). Based on the results of the CA, the variables (Scrum meeting type and PM

language) were significantly associated ($p < 0.0001$, $X^2 = 1192.8$). Additionally, the two variables (Scrum meeting type and PM language) explain 24.9% of the total inertia, which suggests that, while the coding scheme has reliability and explains about a quarter of the data variation, a more refined coding scheme (either with fewer or more distinct categories) may improve the inertia. Based on the decomposed inertia across dimension 1 (59.1%) and dimension 2 (27.4%), a 2-D interpretation is appropriate for the CA.

The results of the CA revealed that, in terms of meeting type, on dimension 1, maintenance meetings (62%) contributed more than average, while planning (61%) and kickoff meetings (34.3%) contributed more than average on dimension 2. It also revealed that, in terms of PM language, on dimension 1, indicators of dissent (12.1%), knowledge exchanges (16.9%), questioning (23.3%), suggestions (15.8%), and team maintenance (14.4%) contributed more than average, while on dimension 2, planning (23.9%), team maintenance (30.8%), and technology maintenance (26%) all contributed more than average.

The CA biplot (see Figure 1) suggests five associations. First, the biplot suggests three PM associations with maintenance meetings: knowledge exchanges (32.7% of knowledge exchanges were in maintenance meetings), suggestions (64.5%), and indicators of dissent (73.9%). Second, this biplot also suggests an association between the planning meeting and the technology maintenance language (60.2% of the technology maintenance language took place in the planning meetings). Finally, this biplot suggests an association between kickoff meetings and team maintenance language (68.7% of the team maintenance language occurred in kickoff meetings).

Interestingly, the biplot does not suggest an association between PM planning language and the planning meetings or the kickoff meetings. I mentioned previously that these teams used relatively little language regarding planning overall; nonetheless, we might expect whatever planning language that was used to be associated with kickoff and planning meetings, where “the work of the sprint is to be planned” (Sims & Johnson, 2012). However, the CA does not suggest an association. Further, we might expect that since the kickoff meeting has an association with team maintenance, the planning meeting would have a similar association with team maintenance.

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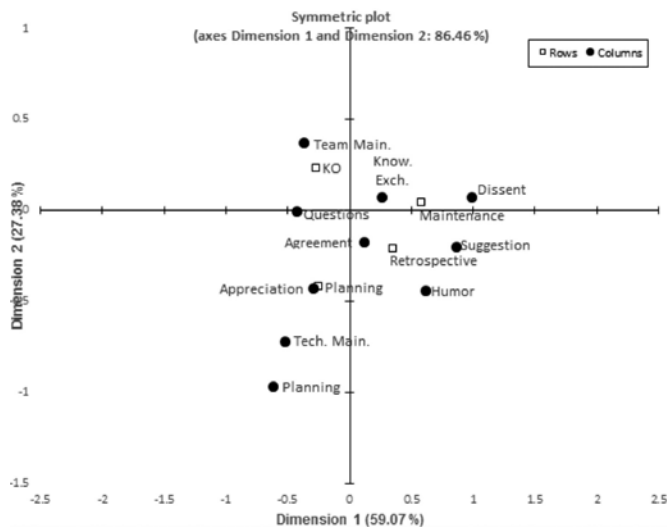


Figure 1. Correspondence analysis biplot of meeting type and PM language

However, the data do not suggest this to be the case. Future researchers may wish to pursue further whether other teams have similar behaviors and why these two meetings, held at the beginning of a sprint in order to establish the sprint's protocol, may have differing associations.

Therefore, the results of this exploratory study and correspondence analysis suggest that the PM used by the groups may, but not always, depend on the type of meeting was being held. These results suggest that some PM language is associated with particular meeting types, but several kinds of language are not associated with particular meeting types when we might expect them to be. We might expect more of an association between appreciation and suggestion language and the retrospective meeting (in which the Scrum Team “inspect[s] itself and create[s] a plan for improvements to be enacted during the next sprint”) than what the data suggest (Schwaber & Sutherland, 2017, p. 14). We may also expect more indicators of dissent in planning and kickoff meetings, in which members may disagree with early proposals, than what is represented here. As is the point for exploratory research, more research should be conducted to further identify how well the noted associations and absent associations appear in other groups. But this exploratory study has provided an initial empirical assessment of the deployment of PM language *in situ* and the baseline for future comparative evaluations as well as direction for self-reported measures.

A Closer Look: Team Maintenance

Given that the purpose of an exploratory study is to identify possible areas of future research, I will now take a closer look at team maintenance within this group's Scrum meetings. Team maintenance referenced the meta-discussions related to the team. These are not discussions about, for example, how a particular client request would be handled in a particular environment. Instead, these are the discussions about the immediate “doing” of the sprint: Who is doing what task? What is each team member's capacity? Are other team members needed in order to accomplish the user stories?

Team maintenance occurred in every meeting type. Kickoff and planning meetings had more references to team maintenance than maintenance and retrospective meetings. Kickoff meetings dedicated more discussion to team maintenance than planning meetings. On average, kickoff meetings spent 25% of the time dedicated to team maintenance, with some kickoff meetings dedicating as much as 59% of their time to team maintenance. Planning meetings spent about 10% of their time dedicated to team maintenance.

Language related to team maintenance occurred in relatively static locations depending on the meeting type. Team maintenance language was found throughout the kickoff meetings, though they clustered slightly more at the beginning and at the end of the kickoff meetings. Planning meetings also found team maintenance language clustered within the first 15 minutes and the last 15 minutes of the meetings. However, planning meetings had a unique 11–17-minute section that usually occurred 30–45 minutes into the meeting. In this timeframe, the project manager, who did not stay for the entirety of any meeting, would interject (“Hey y'all, hate to jump in”), gather information from the team regarding team function (i.e., capacity), and then depart the meeting. In maintenance meetings, language of team maintenance was only ever found in the last 10 minutes of the meetings. And in retrospective meetings language of team maintenance was only ever found in the first 5 minutes of the meetings.

These patterns suggest, then, that team maintenance is a routine function of the teams and the language associated with team maintenance is found in highly

consistent places within each type of meeting. A follow-up survey may reveal how cognizant these team members are about their fairly ritualized usage of team maintenance language within these meetings.

A Closer Look: The Technical Writer

The purpose of this exploratory study was to find patterns of interest in the data, and, although this is outside the parameters of the research questions, one item stood out as particularly relevant for practitioners of technical communication: the absence of any meaningful data from the technical writer. The data from the technical writer are too brief to draw any substantial or generalizable claims about the role of the technical writer in a cross-functional Scrum team. The firm had a technical writing department, and technical writers were to take part in the Scrum process. In this particular firm, technical writers were part of their standard Scrum sprints. At least, they were supposed to be. Only Sprint 1 had a technical writer assigned to it. The technical writer spoke in only two of the six meetings, though he was present for five of the six recorded meetings. The two meetings in which the technical writer spoke were a planning and a kickoff meeting. The technical writer only spoke in 31 turns, which constitutes less than 0.5% of the turns in Sprint 1. Half of those turns were five words or fewer (e.g., “Oh, okay,” “Sounds good,” “I’ll have to check,” “I’ll get back to you”).

In the planning meeting of Sprint 2a, a developer asked if a technical writer had been assigned to the sprint. The following exchange then transpired.

Product owner: I asked [Technical Writing Lead] to give us someone with broadband [i.e., extra hours of capacity] and I never heard back.

Developer: Not like we usually have one anyway.

Indeed, a technical writer did not join Sprint 2a or Sprint 2b. However, in the Sprint 2a retrospective, the following conversation occurred.

Designer: You know that UI [user interface] change? You know maybe we should see what [technical writer] thinks in case they have their way they like to do this.

Developer: He does UI?

Designer: Oh! Maybe not.

It is apparent in these exchanges that the technical writer is not viewed as a necessary component to the Scrum process. His absence does not delay a meeting (something that would almost assuredly occur should any other team member fail to show up to a planning meeting). Further, the relative value of the technical writer to the team (does the technical writer do UI? Or documentation? Or something else?) is also in question. The developer and designer simply do not know enough about the functionality of the technical writer to know if a concern should even be forwarded to the absent technical writer at all.

The purpose of this study isn’t to locate technical writing’s place in Scrum. But from a PM perspective, the lack of technical writing involvement in this Scrum is noteworthy. Apparently, the technical writer is supposed to be a part of the cross-functional team, but it appears here that the technical writer is not part of the team the same way the developers, designers, and architects are. No aspect of any user story addresses documentation or help, no definition of done involves reviewing anything from a technical writing perspective, and the technical writer, while sitting in over five hours of meetings, barely has a voice. Indeed, Tom Johnson (2017), a prominent blogger of technical writing, suggests that attending these meetings puts technical writing in a “weak” and “passive” role:

When tech writers attend every meeting (even if 90% irrelevant) and contribute very little (because of the irrelevance), they’re essentially portraying themselves as a weak, passive role. What other role would attend every meeting just listening for some relevant piece of information while developers rattle on endlessly about issues irrelevant to docs? It demeans the status and importance of tech writers. (T. Johnson, 2017b, para. 69)

Using Johnson’s terms, this technical writer isn’t working *in* a Scrum team; he’s working *with* a Scrum team (albeit the team is uncertain about any aspect of the technical writer’s value). Indeed, as emphatically stated in the Agile Manifesto, working software is valued over comprehensive documentation (“Manifesto for Agile

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Software Development,” 2001). Nonetheless, although perhaps technical writing and documentation should be parallel endeavors to the Scrum sprint, in this sprint, it appears that technical writing is essentially ignored. As such, from a PM perspective, the language used (and not used) by the technical writer in those meetings reveals the technical writer as a misused resource. Yet, although the technical writer may have missed opportunities to establish value had he been invited to either of the second sprints, he may have been more valuable to the organization as a whole by completing the documentation needed for the sprint while not being embedded in an hour-long discussion in which he could (or chose to) contribute little, as represented in Sprint 1.

Conclusions, Limitations, and Future Research

This study is, to date, the largest study of the actual spoken language exchanges of Scrum teams *in situ*. In it, I investigated PM as conducted by team members in three Scrum sprints, and I found that three of the four meeting types (planning, kickoff, and maintenance meetings) were associated with particular PM language. Although the findings of this study are appropriate given the methods and the scope, the results are limited by factors that commonly affect exploratory workplace studies. First, I was limited in my NDA to meetings that did not include the client, a common limitation in workplace studies. Second, this exploratory study collected nuanced data for analysis, but the data was only collected at one site. However, the purpose of this exploratory study was not to identify generalizable best practices but to identify areas that should be prioritized for future research. In what follows, I identify several areas that this exploratory study suggests may be fruitful for future research.

First, and perhaps most obviously, additional research at additional sites that replicate this study would enable comparisons of Scrum PM language across organizations. This data collection is not easy. This study required 10 weeks of dedicated data collection while embedded at a firm, only after all parties (including the participants, management, and legal) agreed to the observations and recordings. But additional nuanced, recorded study would allow for PM language variations within Scrum meetings across organizations to be identified, which, in turn, may begin to allow for best practices to be formed.

Second, additional research at the same site may allow for longitudinal assessment of how PM language alters over time. Along those same lines, it may be useful to see if the associations between meeting type and PM language vary over time or vary based on ScrumMaster. Additionally, it may be useful to identify how Scrum language (i.e., story pointing, user stories, capacity) affects PM language. This study also suggests that a more nuanced look at how team maintenance language is deployed is warranted. In this instance, a survey or interviews may help to explain why team maintenance language was associated with kickoff meetings but not planning meetings and why planning meetings were not associated with either planning or kickoff meetings.

Furthermore, this study provides a baseline of not only how the study could be duplicated with other Scrum organizations but with organizations who do other Agile or Scrum-like PM, such as Kanban or Scrumban. Comparisons to this dataset may reveal that groups that profess to doing Scrum may, for example, actually be doing something more like Scrumban.

Finally, this study also suggests that more research of the function of the technical writer in the Scrum environment is warranted. Additional *in situ* research may reveal that the technical writer's engagement in the PM language is idiosyncratic. Or maybe it's not. Surveys and interviews may also triangulate the data to figure out more about how technical writers feel about their placement in Scrum teams and how others (such as designers, developers, and architects) feel about the technical writers as either being included or excluded from their Scrum teams. It may be the TPC community is uniquely positioned to develop a PM strategy that eliminates the passive, weak role for any position that technical writers currently occupy in Scrum.

This exploratory study has demonstrated the kinds of PM language Scrum team members at an organization use in their Scrum meetings and when they use that language. As an exploratory study, it has also identified several areas that warrant future investigation. As PM continues to be an integral part of technical communication, additional *in situ* research, like that explored in this study, will be needed so we can gain clearer understanding of the actual language processes that occur in the PM process and not rely solely upon participant-reported data for our best practices models.

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Toward an Encounter Team Model of Clinical Project Management: A Needs Analysis of a Family Health Center

Dawn S. Opel, Cathy Abbott, and William Hart-Davidson

Abstract

Purpose: As a part of a clinic transformation project, we studied workflow processes in a family health center in order to recommend interventions for a team-based approach to patient care.

Method: We conducted a needs analysis informed by Spinuzzi's (2013) *Topsight*, undertaken through over twenty hours of clinical observation, studying clinical communication practices by role in the clinic (provider, nurse, medical assistant, and front desk receptionist).

Results: Delivering quality care that extends beyond the patient encounter (the face-to-face appointment) takes a highly coordinated team. Although the Center's schedule was set up for teams, the work environment was not well coordinated except where individual providers were more team-oriented.

Conclusion: An Agile team approach to communicating may be an effective intervention for primary care clinics. Researchers in TPC and UX can usefully contribute to these kinds of inquiry projects in clinical settings, as our research methods offer viewpoints not visible to clinicians alone.

Keywords: clinical service delivery, project management, Agile, writing stewardship

Practitioner's Takeaway:

- The expertise technical communicators bring to their work as researchers, writers, editors, and content managers is in demand in health care as chronic care demands highly literate, well-coordinated communication.
- At first glance, teams appear to exist in clinical work environments, but professional roles may not be well-coordinated or focused on individual care providers' face-to-face encounters with patients rather than a coordinated approach to care across the lifespan of a patient.
- Technical communicators and user experience professionals may contribute to bringing holistic solutions to health care providers' and administrators' needs for collaborative workflows, including emerging project management processes.

Toward an Encounter Team Model

Introduction

Anecdote

It is our third visit to the family medical clinic and, after spending a few hours talking with health care providers and medical assistants (MAs), observing their work routine, our goal is to capture the communicative workflow they use to coordinate the handoff of their roles during a patient encounter. An *encounter* is a term of art in the clinic. It is what patients think of as their time seeing the doctor. But a lot of things have to happen among many roles for an encounter to be successful. Most of those things involve writing. What we find interesting is the way the documents themselves not only act to record information for use during and after an encounter but the way they also initiate shifts in responsibility between different roles in the clinic. They do the latter by acting as physical signals—visual and auditory—that cue the health team's actions.

The signal that an encounter begins is marked by the arrival of a document: A white encounter form comes off the printer, meaning that a patient has checked in with the receptionist. The sound of the printer alerts a MA who takes the encounter form from the printer to the MA station. The MA places it face up on a shared desk space—she will refer to it, but she is also making it available for others who may need to do so as well. It sends a message just by being in this space: Here is the next patient waiting for an exam room. The MA then pulls a record for the patient corresponding to the encounter form. She checks a post-it note and pulls information that the provider (a physician or physician's assistant) also asked to have ready for this patient, based on a pre-screen of the schedule the night before. Finally, the MA pulls blank copies of necessary intake forms for the patient; these will capture the patient's self-reported information during the visit.

Drawing on Hart-Davidson, Spinuzzi, and Zachry's (2007) framework for analyzing knowledge work, we note that there are two categories of information genres in play and two forms of inquiry represented in the encounter. The MA assembles archival information about the patient's history from records in the clinic and off site (e.g., from the local hospital or from a lab that conducts tests). The provider gathers empirical data and uses the encounter form to record observations, instrument readings, some patient self-reports, and other

data that will be used after the encounter to update the patient record. Together, the provider and the MA will produce an intermediate genre that helps the health team stay coordinated. This genre is the official record of the encounter and is called "office notes."

While the MA assembles documents, another staff member readies an examination room. Once the MA sees that the examination room is ready, she goes out to the waiting area and greets the patient, carrying the encounter form and intake forms on a clipboard. She begins gathering the empirical data for the encounter by taking the patient's weight and blood pressure. Then she escorts the patient into the examination room. She gives the patient an intake form, along with the clipboard, for self-reporting and puts the encounter forms, facing inward so no information is visible, on the outside of the door, pulling it shut. The presence of the blank form hanging on the door signals to the provider that the patient is ready to be seen. The MA returns to the desk to assemble information for other patients, checking the printer to see if another intake form has appeared.

Though the process as described here was executed smoothly many times throughout the day, the health team members were nonetheless on edge during this visit, anticipating an upcoming change. A new electronic health record (EHR) system was about to go live in the clinic in a few days. And with it would come a big change in the routine genres used by the team. Soon, all their physical cues would go away. It turns out that they were right to be a bit anxious.

Literature Review

In his book *Network: Theorizing Knowledge Work in Telecommunications*, Spinuzzi (2008) creates a detailed portrait of an organization that performs technical writing as a core function. To succeed in its business and serve its customers, the telecommunications company at the center of Spinuzzi's study needs to do technical communication work routinely and well, much like a drug company needs to do science routinely and well to succeed in its business. When we think of a whole organization, rather than just a few individual workers within it, as the agent doing technical communication work, some immediate challenges arise.

One of these challenges is the way the work of writing is distributed across many roles, creating a network. Communication genres in organizations are

used not only to send specific kinds of messages but also to maintain the network itself, to keep the writing organization writing well. Spinuzzi has developed a very useful methodological framework for handling the research-related complexities of studying writing organizations. You can see that methodology deployed in *Network* and described in another book, *Topsight: A Guide to Studying, Diagnosing, and Fixing Information Flow in Organizations* (Spinuzzi, 2013).

In this article, we present a *Topsight*-style analysis of a primary care clinic to showcase a second type of challenge that arises when an organization needs to write well in order to succeed. That challenge, also evident among workers in the telecommunication company Spinuzzi studied in *Network*, involves the need for people in the organization to stay well-coordinated about how to communicate with one another and with their primary constituents who, in our case, are patients. To put it simply, writing organizations need a category of work we call *writing stewardship* (Hart-Davidson, 2013). Writing stewardship was coined by Hart-Davidson (2013) to describe a phenomenon that, on its face, seems a bit curious when it comes to how technical communicators' roles change over time as their careers develop:

The more expertise they have about how to organize writing processes, and about concepts such as how genres work, the less likely they are to spend their time actually writing. The more experienced and senior they become, the more likely they are to adopt roles as researchers, strategists and managers; managers of content, yes, but also managers of projects and people. (p. 58)

When we approach the clinic to conduct a needs analysis project, we understand our work as part of an established scholarly conversation wherein technical communication and writing studies researchers engage with health services professionals in an attempt to improve care. We are guided in this project by the work of Lingard and Haber (1999); Schryer (1993); Schryer, Lingard, and Spafford (2003); and Heifferon and Brown (2008) who help center the expertise of writing studies and the methods of rhetorical analysis in particular as valuable for improving clinical education and practice. Specifically, the qualitative analysis of these scholars reveals that communicative challenges

abound in the delivery of health care and, accordingly, analysis of communicative practices is a crucial first step to ensuring that quality improvement interventions—many of which are themselves changes to written or oral communication routines—can be successful. Technology makes communication in the clinic even more complex. As Koppelson (2009) has argued, the current age of Internet-connected providers and patients occasions new opportunities for those with rhetoric and technical communication expertise to investigate and provide insight to clinics as writing organizations.

Just as scientists' expertise is needed to look after the quality of science in a drug company, technical communicators' expertise is needed to ensure the quality of the writing processes and communication culture of an organization. Our expertise becomes an important part of the way good writing happens across a full network of roles and genres, because we can help identify where and how communication practices are working well and where they need attention. In our study of a family medicine clinic, we see that technical communicators' expertise is needed for the increasingly critical work of care coordination. The Agency for Healthcare Research and Quality has published an analysis of health care quality improvement standards that focus on care coordination, which it defines as encompassing five factors:

1. Numerous participants are typically involved in care coordination;
2. Coordination is necessary when participants are dependent upon each other to carry out disparate activities in a patient's care;
3. In order to carry out these activities in a coordinated way, each participant needs adequate knowledge about their own and others' roles and available resources;
4. In order to manage all required patient care activities, participants rely on exchange of information; and
5. Integration of care activities has the goal of facilitating appropriate delivery of health care services. (McDonald et al., 2007)

Care coordination, then, is a set of communicative practices that require attention. The current lack of writing stewardship in health care organizations must be addressed to improve the quality of care for American patients.

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Project management frameworks, such as Agile, are currently gaining attention in the health care industry. Just as in other industries, health care now faces uncertain environments and a move from a fixed operations focus to an adaptive focus (Tolf et al., 2015). In an Agile framework, small, cross-functional teams respond to challenges through iterative and adaptable communication processes. Fundamentally, an Agile approach recognizes that teams must be learning all the time to be successful and that a successful team is one where members can all play multiple roles all while staying focused on a shared objective. The resilience and mutual trust to handle emergent challenges are the hallmarks of a truly “Agile” team.

We come to project management in this project with an understanding of it as strategic, inter-team communication, a framing we inherit from technical communication researchers such as JoAnn Hackos (2006) and Stan Dicks (2003; 2013). More specifically, Dayton and Barnum (2009), McNely et al. (2012), and Pope-Ruark (2014) have studied Agile project management methods as routines of genre-mediated communication. The study by McNely et al. (2012) is especially helpful for our work, as the researchers apply an activity-theoretic framework consistent with our approach in order to understand how teams adopt, adapt, and occasionally abandon genres over the course of an extended project in order to keep team members engaged and their goals aligned. For McNely et al., Agile methods function less as a coherent management technique than a set of communicative tools and habits for allowing team members to cope with work demands that are constantly changing (2012, p. 102).

We present our *Topsight*-guided needs analysis of a primary care clinic to show how technical communicators, acting as researchers and consultants, can help organizations engaged in the highly literate practice of chronic care, a growing context for care communication that is both critical to the health of those managing chronic illnesses—such as diabetes and COPD—and costly to the health care industry. Around half of all Americans have at least one chronic condition, and 25% have multiple chronic conditions to manage (Ward, Schiller, & Goodman, 2014). Management of these chronic conditions requires coordination that reaches beyond care providers in one clinic. These communication practices include coordination of community and family support and

patient self-management, and are proven to reduce health care costs and improve health outcomes (Engelhardt et al., 2008). These communication practices comprise The Literate Care Model (Koh et al., 2013) promoted by the U.S. Department of Health and Human Services. Technical communicators can engage with health care organizations by observing writing networks, diagnosing discoordinations and breakdowns in the genre ecologies of those networks, and making recommendations for new kinds of literate practice that better suit the organization’s goals and work styles.

Research Design and Methods

Origins of the Clinic Transformation Project

Authors Dawn and Bill came to this project as a result of an initiative called The Clinic Transformation Project that was underway at the Family Health Center at Michigan State University. The Family Health Center serves adults and children in the mid-Michigan area and is a federally qualified health center (FQHC), providing medically necessary services to patients regardless of ability to pay. The clinic has fourteen providers (MDs, DOs, and PAs) who all hold faculty positions at Michigan State, so they work part-time in the clinic and also teach and supervise medical students. Nurses and MAs work full-time in the clinic.

Author Cathy, a provider in the clinic, was one of the providers who, along with several administrators and other clinical professionals, instigated this project. The Clinic Transformation Project came from the providers’ frustration regarding the level of care provided in the clinic. Providers, according to Cathy, felt there were many systemic issues that were preventing efficient care delivery and negatively impacting patients’ experiences in the clinic. Previous attempts were felt to be “band aid” approaches and were not addressing fundamental issues. Because of this, providers wanted to obtain more data to try to get to a deeper understanding of why the clinic was inefficient and not making progress. Providers felt they had been set in their dysfunctions for so long they could no longer really objectively see what the dysfunctions were.

At the same time, the clinic was moving to a new electronic health record, which would impact patient care and workflow. It felt to the providers an opportune time to incorporate changes to workflow approaching

that transition. Cathy notes that all providers in the clinic are educator-physicians in a school that built its reputation on primary care. Providers felt they needed to be an example of how primary care could and should be delivered. They desired to make their practice an example of excellence. However, they faced a challenge—that their academic practice included many part-time practitioners working a few shifts per week. These academic-practitioners could not be present to lead from inside the clinic full time.

Needs Analysis: Data Collection

To gather the data that the Clinic Transformation Project needed to make improvements, Dawn and Bill (referred to as “we” in this section) relied first, as earlier mentioned, on Spinuzzi’s (2013) *Topsight* as a set of methods to structure our inquiry, a needs analysis. Spinuzzi (2013) defines a needs analysis as a qualitative workplace study that culminates in a set of recommendations to the client to inform an intervention to improve practice. Needs analyses may take different forms but are useful for a genre-based research approach (Molle & Prior, 2008).

For our needs analysis, we specifically focused on observation-based methods inside of the clinic. After IRB approval, we spent over twenty hours in the clinic, shadowing the roles of providers, MAs, nurses, and the front desk receptionist one-on-one as they went about their routine workflow processes. In total, we conducted seven observations of duration between two and five hours each, and shadowed two providers, five MAs, two nurses, and one front desk receptionist. Each professional shadowed signed a participant informed consent form pursuant to our IRB-approved protocol. The duration of each observation was determined by length of shifts for each role and also the ebb and flow of the practice that day (for instance, if there was a lull or repetitive procedures that we had observed several times on one shift, we would choose to return another day).

We did not observe inside the treatment room or record any patient data. Each observation included contextual inquiry, a method developed by Beyer and Holtzblatt (1998) to study workplace activities—actual use of workplace technologies—alongside the user in the context of the work being performed. This method allowed us to ask questions from time to time of the clinician to guide our observation of their work on a specific task. For observation itself, we created a form

that allowed us to record all routine communicative practices chronologically by phase (pre-delivery of care, during care, and post-delivery of care) throughout our time visiting for that day. We also collected consent forms and photographs of artifacts relevant to our observation. These included photographs of physical documentation and communication: a patient room door flag, blank screening forms, the vertical file housing documentation for patient encounters, the documents at each MA station, shift schedules, a whiteboard with general notes for patients, and a handout for patients about the new electronic medical record system.

We also used a framework called *relational coordination* for the collection of our data. Relational coordination looks at how employees communicate and relate for the purpose of task integration. This framework focuses on helping researchers identify specific communication and relationship ties needed to drive coordination and performance in an organization (Hoffer Gittell, 2016). With this framework, researchers learn what communication takes place across what roles in an organization and what relationships with what roles are valued most. This framework has been used in industries as far ranging as automotive, higher education, banking, and now health care (Hoffer Gittell, 2016).

Data Analysis

Data from these observations and contextual inquiries were coded through two separate, first-cycle coding methods: attributive and descriptive coding. Attributive coding was used to code all observational data by the communicative “attributes,” that is, what kind of communicative action was taking place at a given time. We created six attributive codes for our data: data entry, patient-specific data collection (empirical, archival, or observational), research (pulling evidence-based literature online or from lateral paper files), oral communication, and signatures. We also tagged each attributive code with its phase in clinical practice: pre-, during, or post-patient encounter. We used these codes to make findings related to when and how each role in the clinic communicates with other roles and in the electronic medical record, and when competing demands on a professional’s time emerged. (An example of competing demands is when a provider is collecting data at a provider workstation during the patient encounter, when she is supposed to be face-to-face with

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a patient.) We refer to and elaborate on these competing demands in the analysis section as discoordinations, contradictions, and breakdowns.

Separately, we coded the data into descriptive codes, also known as topic coding (Saldaña, 2009), with codes that matched the “optimization” items to be addressed over the next year by IT professionals as the clinic transitions its electronic medical record system. These include: clinical workflow, clinical content, front desk issues, billing issues, and patient engagement. These first cycle coding processes were then used for subsequent thematic analysis.

Results

From the attributive codes and their relationship to the patient encounter, we found that providers had more instances of conducting research than MAs, nurses, and the front desk receptionist, whether it be patient-related or literature-based, before, during, and after the patient encounter. In the two observations of providers, eight times they took time from their patients to go to their computer terminals and look up records or literature in order to provide patient care. Despite the fact that we observed five MAs, we documented only four instances of similar work.

Providers are also doing more data entry than the other roles that we observed (MAs, nurses, front desk). The two providers entered data into the “office note” and/or the electronic medical record eleven times during our observations, compared to four for the five MAs we observed. This is further compounded by the fact that providers frequently postpone documentation for after their shifts, such that we could not observe all post-encounter/afterhours “charting.” On the other hand, the MAs we observed spent more time seeking oral or written communications (including signatures) from providers. We recorded over 20 instances of MAs writing post-it notes to providers and placing them at their workstations, approaching providers to ask quick questions and attempting to find a provider in person to obtain a written signature for particular forms. Further, much of the MAs’ time was spent in non-communicative actions with other roles (e.g., preparing rooms for patient encounters, rooming patients, exiting with patients, etc.). Last, the qualitative data also indicate lack of communication from MAs in two contexts—MAs sitting and waiting for instruction

from providers and documents that could not be signed or approved sitting in piles at stations. These were not recorded as communicative actions, so this may reflect why the numbers of communicative occurrences are lower for MAs than for providers.

Nurses juggle all communicative tasks asynchronously, in phone triage or at their workstation calling patients. When we observed the nurse in phone triage, she performed almost all communicative actions at the same rate:

- three instances of data collection,
- five of data entry,
- six of oral communication (outbound phone calls to specialists or other professionals),
- and three of written communication to others (prescription forms, etc.).

It is important to remember that the nurse phone triage role operates outside of the boundaries of patient encounters (appointments), so her schedule is largely based on when in-bound calls from patients are returned. An “encounter” is the patient phone call, which lasted, during the observation, five seconds to twenty minutes.

What follows is a discussion of the themes that relate to one particular area for analysis: the need for a team approach to the coordination of care in the clinic.

Analysis

We organize this analysis section into three major recommendations that we gave to the Family Health Center based on the needs analysis. After each recommendation, we provide the evidence from the analysis that led to that recommendation, and we close each recommendation with discussion of how these recommendations were received and taken up by the Clinic Transformation Project. We do this intentionally to focus on actionable, team-based approaches in clinical practice and to show technical communicators how they might participate to improve the communication culture of a clinic.

Encounter Teams are Necessary

In *The Birth of the Clinic*, Foucault writes that the “formation of the clinical method was bound up with the emergence of the doctor’s gaze into the field of signs and symptoms” (1994, p. 91). It is a pervasive cultural

notion that the clinic is a practice in which a solitary provider views a solitary patient, makes a diagnosis, treats the patient, and sends the patient on her way. The reality of 21st century clinical practice is that the provider cannot operate alone due to the myriad communicative processes that drive complex service delivery and payment schemes. For this reason, clinics may discover that they need to be more intentional about their coordination strategies than they may be prepared to be on their own.

What literate practices did we see difficulties with?

Our needs analysis supported a recommendation that the Family Medicine Clinic must move to an encounter team strategy of coordinated care, as the lack of team cohesion was causing discoordinations, contradictions, and breakdowns in the daily practices of all observed roles in the clinic. At first glance, it looks like teams exist in the clinic. The schedule shows the roles accounted for in each daily shift (see Figure 1).

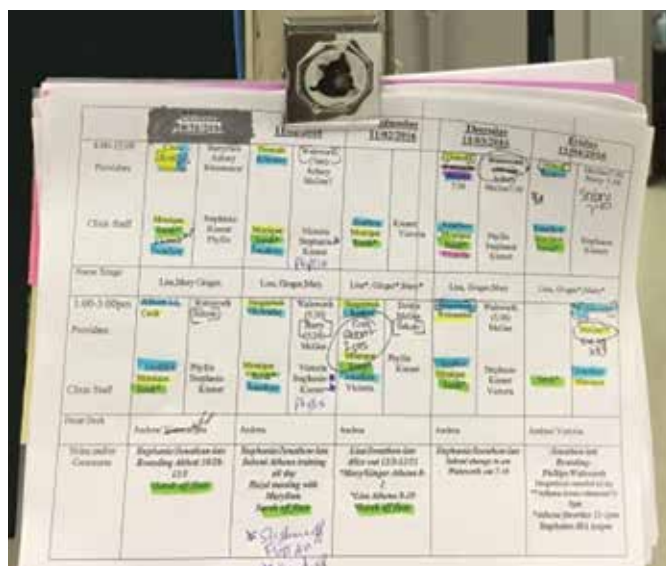


Figure 1. Weekly schedule in the clinic (Photo taken during Authors' Observation, 1 Nov. 2016.)

In our observations, we recorded many instances of discoordinations wherein failure to “hand off the baton” meant that one role (e.g., a MA) was waiting for another (e.g., a provider) in order to do that role’s jobs. Often, this involved MAs waiting for providers to tell them what to do while providers did the work of MAs themselves. This is reflected in the number of instances in the data wherein the provider is doing

the data collection, retrieval, and entry, while the MA observational data shows absence of this work, instead waiting on communications. This caused circular frustration. MAs expressed concern to us that they may not be doing enough or trained to do the work, and providers in turn felt the MAs were not doing what they were supposed to be doing. Much of this confusion was related to two issues: the scheduling of providers and the lack of training and professional development opportunities for MAs. As we mentioned earlier, providers are not in the clinic with enough routine to establish and lead a consistent team mentality. One provider we observed had a routine that encourages team approaches, whereas the other had a more independent management and work style. Furthermore, training and experience vary considerably among MAs such that processes vary widely depending on which MAs are on duty. This was particularly clear in terms of the relationship of the MA to data entry in the electronic medical record. In our observational data, only two of five MAs were entering data directly into the EMR. As a result, there is highly inconsistent workflow across the clinic by time and space.

From our contextual inquiries, all participants in all roles—providers, MAs, nurses, and the front desk receptionist—expressed, directly to us, feelings of contradiction between their perceptions of their role versus what they actually do every day. In the Family Health Center, the two nurses we observed perform asynchronous tasks, such as returning phone calls to patients rather than participating in the encounter, except for routine blood draws for patients checking medication levels. These appointments are not considered encounters or incorporated into a patient care strategy. As a result, one nurse expressed to the researcher a feeling of being sequestered and that her work feels more administrative than care-oriented. As earlier stated, two MAs in our study felt more empowered to do higher order work by particular providers, whereas others were left to do what they knew and expressed discomfort over their lack of technological know-how in the new electronic health record.

Finally, the front desk receptionist and billing administrator we observed work in isolation under the current model, with defined tasks that remove them from the machinations of the encounter. Both participants expressed their lack of connection to clinical operations. The front desk receptionist, in

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particular, mentioned how difficult it is when she is given a wait time to announce to patients when she had no idea how others arrived at that number. For this reason, the front desk participant felt disempowered from working on improving patient experience issues, such as wait time in the clinic.

As these discoordinations compounded, they led to significant breakdowns in workflow. The discoordinations and contradictions described caused slowdowns in practice workflow, which manifested in longer wait times for patients and the inability for providers to be able to complete charting tasks in the EMR at the conclusion of a patient encounter. As a result, charts are completed days after the encounter, which in turn can lead to a lag for claims and billing. Further, there is a perception of uneven quality of care based upon which provider is on duty and which MAs are assigned during that shift.

What did we recommend?

These findings led us to make several suggestions to the Clinic Transformation Project to improve the team dynamic in the clinic, including changing the scheduling process. Under the current system, the same MAs were assigned to the same “sides” every day (there are two equally sized physical sides to the clinic, “A” side and “B” side). Providers were also assigned to the same MAs on a particular side each time, and our needs analysis indicated that pockets of greater team acumen had developed with a handful of providers and MAs on one side. We recommended, then, that re-assignment take place such that this expertise was distributed across the clinic.

How did the clinic as a writing organization change?

As of the writing of this article, no change in this area has occurred. These changes require a difficult cultural shift in the clinic for all, as the highly performing pockets of clinical staff do not wish to lose their momentum as a practice group. Others do not wish to change their routine. As a result, this recommendation for intervention has not yet been implemented or tested.

All Clinical Professional Roles Must Participate in the Literate Practice of Care Delivery

Returning to Foucault’s description of clinical practice, we find through this study that the same cultural stigma exists in the clinic for the role of the provider in terms of performance of literate practices in the delivery of care. This is particularly difficult given the increased

research, information gathering, and documentation demands inherent in the practice of evidence-based medicine (Masic, Miokovic, & Muhamedagic, 2008). As the introductory encounter story shows, the literate practice of care delivery includes multiple research and writing tasks, which take place before, during, and after the encounter itself.

What literate practices did we see difficulties with?

Our evidence from this needs analysis suggests that providers do a disproportionate amount of this work in the Family Health Center, and, as a result, there are corresponding discoordinations and breakdowns in the clinic. Of the providers in the clinic, only two were assigning pre-encounter research tasks of any heft to MAs. Discoordinations took place during encounters when providers would exit the treatment room to conduct research in order to make decisions. This would often lead to a statement to the researcher with a corresponding contradiction they felt about their role, expressing, “I forgot to assign that to an MA beforehand” or “I forgot to look that up beforehand.” Taken together, breakdowns occur when providers take all research and writing roles as their own. Office notes do not get completed during encounters. “Charting,” or the practice of finishing up office notes and coding for billing purposes, is often left to days or weeks after the encounter. There are lost communications in those piles of charts, which can lead to phone calls into the clinic, causing more asynchronous communicative work for nurses and MAs. In our data, this appeared as unsigned or incomplete paper documents left in piles at the end of a shift or when one MA showed us piles of documents hidden in drawers in the mail room. Finally, the ad hoc manner in which charts are completed further creates fragmented communication inside of those EMRs for future research for the next encounter or patient inquiry. The written communication of the clinic, then, is almost always running behind or incomplete.

What did we recommend?

Our recommendation, then, was to integrate and coordinate MA, nurse, and provider roles in the literate practices of health care service delivery. Our particular focus was the gathering of empirical evidence (prior data about the patient relevant to that day’s encounter) by an MA rather than by the provider. This

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would ideally take place prior to the day's schedule but definitely prior to each encounter visit. Instead of providers at their desk ahead of each encounter, furiously looking up information, they could instead be completing encounter office notes, completing coding of encounters, and remaining on schedule. Although this focuses on information gathering, other recommendations included increased training and professional development for all roles to use the EMR for writing tasks more confidently.

How did the clinic as a writing organization change?

With these recommendations in hand, the clinic staff began to implement a chart preparation “huddle” (a lightweight take on the Agile project management framework) in which similar kinds of encounters (annual exams, for example) were discussed at the beginning of the day and notes were made for the provider ahead of the encounter, filling in a template for that type of encounter. Adopting an Agile-like “scrum” appealed to the clinic staff for a few reasons. One of these was the way it helped providers and MAs begin each work day by coordinating information gathering needs for patient visits. This included a training component for the searching of multiple EMRs and inputting of data into the new EMR system. Initially, the team meetings went well and were fairly successful when all providers started at the same time each day. Unfortunately, it was difficult to replicate in another “side” of the clinic, where there are staggered start-of-shift times for providers as well as the MAs. As a result, the pockets of team mindset have remained in certain areas of the clinic.

A Quarterback is Needed for Team-Based Approaches to Clinical Care

As mentioned earlier, the unique situation for teaching clinics like the Family Health Center is that the health care providers who work there are not full-time employees of that clinic. Providers are part-timers, even though they have the highest rank and authority. As a result, they simply cannot be tasked with coordinating the teams that must operate in that space.

What literate practices did we see difficulties with?

In our needs analysis, we witnessed that the nurses may be able to fill that quarterback role in the clinic. The two nurse participants in the study, ironically, had the

most experience in clinical practice of all roles in the clinic yet did not work on encounter teams. The nurses indicated to us that their position in the clinic, doing primarily asynchronous phone tasks, was unfulfilling compared to direct client contact, and that they felt isolated and underutilized. Meanwhile, MAs, with far less experience, were working directly with patients and simultaneously increasingly performing many other communicative and clinical tasks.

What did we recommend?

We recommended that nurses perform a quarterback role in the future to coordinate the team-based approach to clinical encounters. In a study of a Lean thinking intervention in a primary care clinic, Bushell and Shelest (2017) discuss the importance of team meetings (we are calling them “huddles” here) with a variety of stakeholders to the clinical processes in order to obtain buy-in and increase the potential for lasting change. These meetings have to be coordinated and have to involve all roles. Although the focus for the meetings might shift from one communication process or workflow to another (in the Bushell and Shelest (2017) study, the meetings were for multi-day value stream mapping events), the need for oversight remains. Because the nurses are in the clinic full-time with a significant amount of time and expertise, and are not scheduled as rigidly as those that handle encounters, this seemed a natural fit. Further, the team meetings would integrate nurses into the encounter workflow process.

How did the clinic as a writing organization change?

The clinic did initially implement a morning huddle to plan the day along with a chart preparation process that was discussed earlier. The huddles in the morning, held prior to the first appointment of the day, were run by one of the nurses who also printed schedules and color coded encounter types (in particular, using an orange for patients with diabetes, blue for those with depression, and yellow for routine follow-ups). She also made sure that certain chronic pain patients and minors received appropriate forms and tests. She then oversaw a meeting with any MAs and providers who might add other tests or screenings needed based on those conversations. Although the huddles did not last due to scheduling difficulties, the nurses continued to try to meet with providers and provide the color-coded prep sheets.

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While losing some of the personal communication, which was highly valued, it still, according to providers, has improved communication and increased the likelihood that the provider has the information needed to complete each visit. It has also empowered the MAs to be more proactive and participate more in the documentation of the visit by entering screenings and preventative health data into the EMR.

Discussion: Challenges To Implementation

As we have already described, the Clinic Transformation Project has made incremental changes based on our recommendations, but it has been difficult to implement more substantive and structured interventions in the clinic. Why is this? We point to two issues of note for technical communicators and researchers to consider when working in health care organizations.

Change Requires the Buy-in of all Stakeholders to the Clinic, including Administrators

The most significant roadblock to change in a health care organization is the administrative structure that controls the scheduling and billing of the organization. Most of the interventions we suggested involved changing a role such that this role would need to spend more time asynchronously, or off of the appointment-encounter schedule, in order to meet and to plan, and communicate with other roles rather than in a silo by themselves. Although at first glance this does not seem difficult, especially considering the cost savings that may result from better-coordinated care across contexts, this is the crux of moving from a cost-based health care system (more revenue for more patients seen per day) to a value-based health care system (incentivizing a focus on preventive care and quality improvement).

Although the Clinic Transformation Project did include administrators and was supportive of the development of a transformative scheme, support broke down when it came to implementing a structured intervention. This breakdown was largely due to cost. Studies show that it takes time to see cost savings from a process improvement project (CMS, 2016). However, it is profitable for clinics with money to spend on the transformation or for clinics with funding to undergo the transformation. The Family Health Center is caught in the middle, with interest but no immediate funding.

Cultural Changes are Difficult in Professional Settings

A transformation requires change, and, here, we recommended changes that would change the nature of the work that all roles in the clinic do. Our recommendations also require more transparency around what kinds of communication (and with whom) some people are comfortable with, and what kinds they might not be as comfortable with. One finding from the study is that nurses, MAs, and front desk staff all valued their performance according to how well they performed in the new EMR system, although it was not customized to their own workflow in the clinic. When our recommendations included a change in role away from working within the siloed inboxes and outboxes in the EMR, and toward more networked writing, those roles expressed discomfort, because some felt they were already working hard and improving within the confines of that system. They perceived our recommendations as adding on to that work, rather than transforming it.

We also found that it is a difficult cultural change to focus less on the face-to-face encounter with the patient and more on communication with other professional roles, particularly for the providers. The provider role is still very much tied up in the performance of the doctor-patient relationship in the treatment room—our observations included providers who expressed frustration at having to leave the treatment room to answer questions as well as having to take notes while talking to a patient and time spent writing or communicating to other staff while patients were waiting. Health care providers may experience stress in having to network their communication practices. In a study of doctors and nurses in a heart clinic, Arnetz, Zhdanova, and Arnetz (2016) found that patient involvement in decision-making with providers caused both “uplift” and “hassles” for providers. This study sheds light on the unintentional side effects of involving more communicators in the work of the patient encounter.

Implications for Researchers and Practitioners

Our needs analysis presented here is but a glimpse of what we believe is possible if technical communicators, researchers, and health and medical professionals work

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together to study the communicative practices of clinics like the Family Health Center. Three major implications emerge from our study for technical communicators and researchers.

Communication Study in Clinical Practice is Needed

We describe earlier how care coordination is both urgently needed to facilitate the treatment and maintenance of patients' chronic conditions, and also how care coordination is, at its essence, a communicative practice. As clinical practices are incentivized to move from an individual role focus to a coordinated approach to care, they need communication strategies designed to assist their staff, particularly in writing stewardship. Today, many practices are turning to technological tools (such as, in our case, a new EMR system) for help, but our needs analysis revealed that the tool itself couldn't support team-based approaches when the users still work alone. In fact, as our opening anecdote makes clear, without a careful needs analysis, introduction of a new system may well disrupt communication patterns already in use in the clinic and have unintended negative consequences for members of the health team. Technical communicators are well prepared to spot these kinds of disruptions and breakdowns, and can have much to offer to the study and improvement communication practice in primary clinics.

Service Delivery Improvement Efforts Can and Should Involve Technical Communicators

For the Clinic Transformation Project, provider Cathy noted that having technical communication researchers involved was extremely helpful, as the researchers provided information about the different roles in the clinic—including their perspectives and priorities—in ways that team meetings did not reveal or capture. Although there is growing awareness of the need for “literate care” consistent with calls by Ass. Director of U.S. Department of Health & Human Services Koh et al., the reality is that transforming health care organizations is complex work that few clinicians are trained to do. Many private practices who can afford the investment are hiring outside consultants to perform this kind of work. But resident and community clinics may not have the resources for consultants. They may need to secure grant funding to conduct the kind of research to

drive successful service delivery transformation. For these organizations, we see that technical communicators, both practitioners and researchers, can offer their expertise as writing stewards and user experience professionals to facilitate important, life-saving work.

Project Management Interventions Can Impact Quality of Health Care

The growing demands for clinicians to gather information and enter documentation, combined with the number of separate systems necessary to use to find and enter information, have created information overload for providers such that they work overtime and are constantly behind in their writing work. Our needs analysis shows that these tasks must be distributed and in a manner that is team-oriented and efficient. The Agile approach here that we have recommended to the clinic has promise to alleviate some of the breakdowns in continuity of service and improvement in the quality of care across clinical roles for the patient. However, there is much more research to be done to investigate which emerging project management processes best suit clinical practice.

Coda: Spotting Evidence of New Coordination Practices

We are optimistic that the changes Cathy and her team have begun to make will be meaningful and effective, because we not only see a new routine, but we also see that they have new ways of reflecting and acting on the communication work they do. Cathy's own account of their changes reflects explicit references to coordinative genres and aims that were not visible to them in the past. Here are her words to describe one of the changes that we highlighted above:

We began by implementing a huddle in the morning to plan the day, and attempted to implement a chart prep process. The huddles in the morning were run by one of the LPN nurse triage staff, and did include some chart preparation. She printed schedules and color coded visit types, in particular using an orange for patients with Diabetes, blue for those with depression and yellow for routine follow ups. She also made sure that MAPS were run for our chronic pain patients and that we had MICR for all of our patients under 20. She then oversaw a meeting with the MA who was in early and the providers, who would then

Toward an Encounter Team Model

add any other things that they saw would be needed for patients, like GAD 7 screens or PHQ-9 screens.

We also attempted to do chart prep huddles with a few MAs, focusing on annual exams, having them find the last pap smears, mammograms, colonoscopy, and tetanus, and psas if they had had one, and copying it into a “bubble” that could be put into their notes once the visit for the day was opened. This was so that these items could be more visible and accessible to the provider. It has been especially important as not all data from the old EMR was inputted in a way that mapped into the new EMR quality button. This also allowed them to search the hospital EMR if the data could not be found in the new or old emr, and doing it as a team was more efficient.

Notice here the centrality of communication—again, both routine acts and genres (established and emergent)—to characterize the day-to-day work of care delivery. In the end, perhaps the best result of this needs analysis work will be the way we have made a category of work that had been almost completely transparent visible and intelligible to the health team so that they can work to improve upon it.

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Project Management, Contradictions, and Textualized Activity: Supporting Reflection in Project Based Organizations

Doug Divine and Mark Zachry

Abstract

Purpose: Fluid team dynamics, pressures for shortening temporal cycles, and ever shifting configurations of work pose fundamental challenges for workers in project based organizations (PBOs). Since project work is episodic, project professionals rarely have opportunity to reflect across projects to identify potential organizational, social, or tool-based contradictions affecting their work. Given these challenges, an opportunity exists for technical communicators to leverage skills in communication analysis and modeling to aid project professionals with reflective exercises.

Method: We propose an Activity Theory framework to analyze and model email communications generated during a project lifecycle to help technical communicators identify emerging contradictions and provide reflective feedback loops for project workers. Using the Enron corpus, we offer a case study detailing the construction of a reflective activity-centric model for project workers.

Results: Our case study provides empirical evidence that activity-centric models can be constructed using email and attachments when organized by the five process groups outlined in the Project Management Body of Knowledge (PMBOK). Sample modeling and questions derived from the work offers examples for reflective engagement with project professionals.

Conclusion: Activity-centric models derived from email records offer technical communicators an approach to identifying contradictions within and across projects. Resulting models and reflective exercises can support project professionals with feedback loops aimed at improving how they understand their work and the collective culture in which it is produced.

Keywords: project-based organizations, Activity Theory, reflection, contradictions, email

Practitioner's Takeaway:

- This manuscript lays out an agenda to explore and expose how work email with associated attachments can be analyzed to offer reflective, activity-centric models for project workers within project-based organizations (PBOs).
- This work suggests a new role for technical communicators that directly embeds their skills within the project lifecycle, helping to improve project documents and the very work they facilitate.

Introduction

Natasha works as a technical communication specialist in a large aerospace manufacturing company. She supports a group that works on process improvements across the company, focusing on projects meant to ensure the company maintains its reputation for innovative solutions in a highly competitive industry. The many projects her group is involved with at any given time inevitably compete for the time and attention of the team. For Natasha, the sheer volume of project-related email messages transmitting plans, reports, spreadsheets, and many other types of attachments represents a constant challenge to project work. As a team, they have a strong record of meeting their objectives despite the intense volume of information they must process on a given day. She often wonders if there might be an opportunity to assist in their project work if she could find ways to help them think differently about the patterns of activity this nearly ceaseless flow of messages and information embodies. Might she help improve the very documents that make up the project's DNA by helping project professionals reflect on the mediating roles these documents play throughout the project lifecycle? Might she help illuminate the ways each project professional is networked and affecting the larger organizational community through their work?

Project based organizations (PBOs), where most or all business activities are undertaken in the form of projects, are now prevalent in industries like Natasha's and others as diverse as software engineering, advertising, construction, and film (Bartsch, Ebers, & Maurer, 2013). PBOs are suited to diverse industries engaged in the development of complex products and systems, relying on cross-functional business endeavors (Hobday, 2000). In such organizational contexts, work becomes projectified, as management must interpret and address ever-changing team dynamics, shifting configurations of work, and pressures for shortening temporal cycles (Midler, 1995). Although project work in PBOs is made up of temporary initiatives with a beginning, middle, and end, the organization itself functions as a persistent socio-cultural environment that relies on routine and predictable systems of work. This unique combination of temporary work routines embedded in a persistent organization of social practice presents a challenging environment for workers to

adapt their individual working styles. The workers who inhabit these organizations are susceptible to conflicting conditions and even a fragmented understanding of the value they bring to the PBO.

To help address these challenges, we contend technical communicators like Natasha could assist individual project workers through structured reflective exercises. Ideally, these exercises would support the development of a common model for communication and learning that would not only highlight a project worker's understanding of his or her role and contributions to a given project but would also equip him or her with a deeper understanding of his or her larger organizational community. The field of Technical and Professional Communication (TPC), which has historically prioritized a deep understanding of the relationship between humans and how the world is represented to them, offers resources for addressing such a need. Specifically, we propose a communication-centric approach to understanding project work as it is embodied in textualized exchanges that could be represented in ways that support reflection.

In this approach, we leverage an Activity Theory framework (Engeström, 1987) to empirically assess the possibilities of creating models of project work as activity systems. Our modeling approach acknowledges that, in most organizations, people execute multiple projects concurrently and sometimes in overlapping configurations. Consequently, our use of the Activity Theory framework relies on a source of information that cuts across the boundaries of organizations, projects, and time. Email, a nearly ubiquitous information source in workplace communication, is a first order element in our activity system model. Email offers empirical "residue" of project activity that remains available in an accessible semi-permanent fashion for analysis. Structurally, email carries rich contextual information across work boundaries by way of metadata, body text, and associated attachments—all of which makes it an excellent repository of project work communication.

Our case study focuses on project-based work messages in the Enron email corpus (Klimt & Yang, 2004). Although Enron is a notorious example of a failed PBO (McLean & Elkind, 2003), our analysis here is not focused on their devastating failing and downfall. Instead, we use this corpus because it is a rich example of workplace email communication in

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the research community but one that has been largely neglected by researchers in our field. Through an analysis of an Enron project workers' email folders we attempt to demonstrate how communication content (messages and associated artifacts) can be used with contextualizing metadata (temporal markers and distribution lists) to support the development of Activity System models capable of enabling reflection on collaborative project work. The modeling approach offered through this case study could be leveraged by professionals like Natasha, providing technical communicators a more formal role in the project management process by identifying areas where they could help project workers improve communication across project documents and the work systems that sustain them. In turn, the reflective assistance provided by technical communicators could help project workers identify and confront the socio-cultural contradictions that may be at play between the work activities experienced within a project and those that may be desired or supported by the larger employing PBO.

Expanding The Role of the TC Professional In Project Work

Technical communicators can play a significant role in helping facilitate both research and action-based results in the PBO domain. The role of technical communicators in project-based work has been a concern for the field for many years, ranging from studies of how to manage teams of communicators (Bosley, 1991) to integrating technical communication skills into new forms of ad hoc project teams (Spinuzzi, 2014). Reflecting the changing nature of work today, leaders in our field (e.g., Fisher & Bennion, 2005) have called for greater integration of technical communication specialists in project-based work. They have called for technical communication specialists to invent and enact appropriate means of assessing how they can become more effective in reflecting on and assessing work practices to support informed collaborative environments.

To prepare emerging technical communicators for the projectification of the workplace, pedagogically focused researchers have developed curricular approaches that highlight the synergies of project management and technical communication. One suggested curriculum outlines a communication

approach to project management that focuses on genres of project documentation and the situated nature of those documents in the project management process (Kampf, 2006). Teaching technical communication students project management processes and structures better prepares them to understand rhetorical situations in the workplace and participate more effectively in project work with an awareness of the situated role of project documents. Building on this notion, Lauren and Schreiber (2017) propose a curriculum that promotes a systems approach to project management pedagogy. The authors posit that a systems approach helps those engaged in PM activities understand how project work connects people across organizations. One focus of this approach relies on feedback loops:

Feedback loops are markers or measurements used to determine if a system is functioning well. For example, if a team begins to bypass a newly implemented information communication technology meant to support project work in lieu of the previously used system, the team is clearly signaling some sort of problem. Looking to feedback loops can help project managers understand how well the system is working, and if it isn't working, make changes. (Lauren & Schreiber, 2017, p. 3).

Across both proposed curriculums, it is clear that project management practices would benefit from students skilled in rhetorical analysis, the situated impact of project management documents, and an understanding of the networked nuances of collaborative projects. Our work supports such curriculums and proposes both a role and a recommended approach for technical communicators to engage in industry-based project work systems. We propose that technical communicators can aid in the development and use of reflective models based in Activity Theory to uncover the empirical evidence needed to support both the communication and systems approaches to project management. Activity Theory highlights areas of contradictions within an activity system, allowing reflective and educational opportunities (feedback loops). It also emphasizes the role of mediating tools or communication genres (project documents) within the situated context of project activities. Most importantly, it helps illuminate the socio-cultural environment

through which the activity is being mediated by calling out certain rules and divisions of labor unique to the context of the activity.

Activity Theory for Project Work in PBOs

Activity Theory, developed by Lev Vygotsky and expanded by his student Alexi Leont'ev (Kaptelinin & Nardi, 2009), offers a theoretical lens to study human activity. Researchers in technical communication have found Activity Theory a productive framework for structuring studies over the last 20 years (McNely et al., 2015). For example, AT has been proposed (Swarts, 2013) as part of a conceptual framework for understanding how digital tools like email mediate the work of technical communication, shaping and organizing the very nature of that work. In addition to the many academic studies of technical communication employing AT, members of the practitioner community have acknowledged the utility of AT for analyzing and changing work practices. In the STC-sponsored Body of Knowledge (n.d.), AT is introduced as a “useful theory” that has application to understanding the work of technical communication in a contextualized manner. Our work seeks to capitalize on this familiar framework in the technical communication space through an approach that orients its utility within PBOs and the project worker community.

Activity Theory is uniquely suited to provide insights into project activity, because it is holistic in its approach to work systems. The work of Yrjö Engeström (1987) propelled the use of Activity Theory in work-related research by incorporating its underlying concepts into a model representing the mediating aspect of activity, as seen in Figure 1. As we explore later, a specialized version of this basic conceptual model offers technical communicators a means through which they can expose and facilitate reflective exercises with project professionals.

The model represents the human *subject*, focused on a specific *object* of activity, mediated by any number of *tool(s)* used to achieve a desired *outcome*. As *tools* mediate the relationship between the individual *subject* and the *object* of an activity, Engeström posits that *rules* mediate the relationship between the individual *subject* and his or her associated *community*. To complete the concept of the collective, Engeström posits that a *division of labor* mediates the relationship between the *community* and the *object* of the activity. When

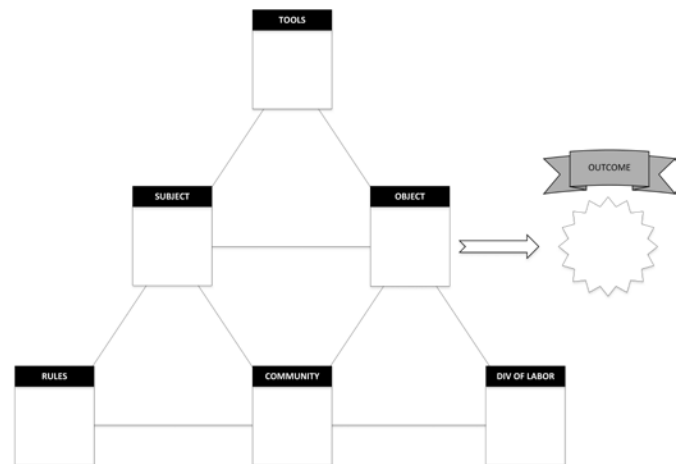


Figure 1. Engeström's Model of the Activity System

completely envisioned, Engeström referred to this collective view of activity as an “activity system,” the most complete unit of analysis needed to understand activity from a cultural and historical perspective. If Natasha were to use this model as a reflective tool for her aerospace co-workers, she might ask the questions outlined in Figure 2 to begin identifying the necessary components of the activity system.

The activity system model has shown tremendous value in studying work on many levels (Russell, 1997), including largely complex and persistent activity systems like those found in health care (Engeström, 2001). Spinuzzi (2013) offers an accessible guide to practicing this modeling technique at various levels (micro, meso, and macro) of knowledge work activity in organizations. Our study addresses the unique challenge of using an activity system model to understand work at such levels in project-based organizations. Traditionally, researchers engaged in developmental work research (e.g., Engeström, 2000) have collected artifacts, observed work practices, and interviewed workers to understand systematic networks of routine activities that persist over time. PBOs, by contrast, are defined by fleeting processes and temporary work configurations in which project workers are frequently associated with multiple, irregular project configurations of varying temporal durations. The challenge, then, is, How can one observe and begin to understand a PBO using traditional methods if the information collected represents only the set of projects currently in play? What material is sustained across the PBO that can serve as a consistent and stable source for analytic inquiry? A well-reasoned approach to studying project-based work at a scale that

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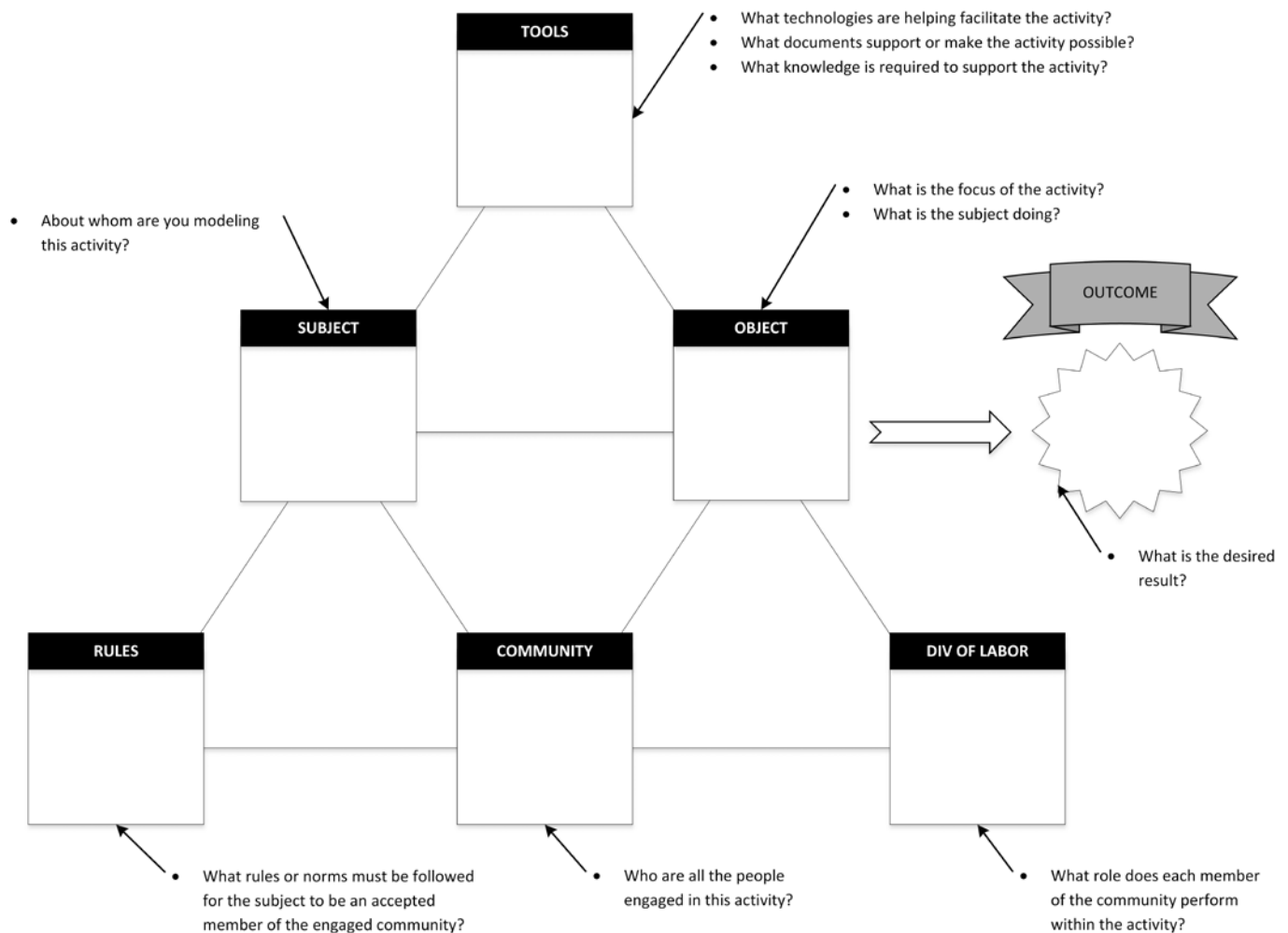


Figure 2. Questions supporting the modeling of an Activity System

transcends individual episodes of work would need a rich source of data, ideally one that was pervasive, contained current and historical communication among workers, contained distinct mediating artifacts with historical context, and afforded access to motivated members of the organization.

Email as a Reflective Source for Project Work Analysis

Despite the many collaborative tools emerging since the proliferation of Internet access, email remains a consistent standard for workplace communication and provides an obvious source of historical information for researching project-based activity and communication genres. For example, Østerlund, Sawyer, and Kazianus (2010) demonstrate that email usage patterns are highly

correlated to meeting activities, providing an index of broader patterns of externalized work activities. Other studies provide evidence that email is connected to coordination and project work (Mason & Leek, 2012), a conduit for artifacts used across Agile project methods (Kuhrmann et al., 2013), and a potential resource to understand activity systems of work-based networks (Millen et al., 2004).

As we illustrate through our case study below, a principled, theory-driven approach to analyzing the artifacts found in email exchanges can productively expose activity-centric structures that support project work and provide a source of reflection for project workers. Our approach extends Engeström's familiar activity system model to the distinct nature of work in PBOs. However, this approach requires a principled way of defining and constraining the *object* in

project-based work, which is not inherent in the model we are adopting. As has been noted recently (Spinuzzi, 2011), most research in our field has used a lax notion of the *object*, allowing the analysis to drift when applied to activity systems at different scales. The approach we advance here, consequently, draws on a resource often overlooked by project management researchers to address this problem—the Project Management Body of Knowledge (Rose, 2013). Specifically, our approach advances the notion that for analytical purposes, project management activities must be understood in terms of the discrete process groups outlined in the PMBOK.

The PMBOK offers a set of field-recognized practices to project management that structures project work regardless of size, industry, or methodology. This systemic structure outlines five distinct process groups that include (1) initiating processes, (2) planning processes, (3) executing processes, (4) monitoring & controlling processes, and (5) closing processes. By constraining the *object* of focus for project-based activities to one of the five PMBOK process groups, the socially recognized structure of the PMBOK provides a way for project professionals (assisted by technical communication experts as we describe later) to select the attachments that pertain to each process group. Only emails pertaining to the identified attachments are included in the analytic frame, thus limiting the empirical data to a particular project,

project community, and set of mediating tools used to complete the project processes at hand.

In addition to the socio-cultural structure offered through the utilization of the PMBOK process groups, we further limit our analysis to an individual subject or project worker. Email is contained in folders organized by individuals and, when analyzed in this way, it offers a specific configuration of communication artifacts unique to the individual. Although we concern ourselves with providing an approach to assist individual project workers with reflective opportunities, our focus on the individual should not be interpreted as commentary on the longstanding struggle of modeling collective motivations in collaborative work. Although the attempt is not covered in our case study, we encourage combining individual activity models for the same object or PMBOK process group, or even across the complete set of PMBOK process groups, so that a greater understanding of the macro-level activity system can be assessed.

The Enron Corpus, a collection of Enron employee emails made public by the Federal Energy Regulatory Commission during the investigation of the Houston-based company's collapse between 2001 and 2002 has quickly become the golden standard in research related to email. This corpus contains over 500,000 emails from 151 users, distributed across 3,500 different folders. Klimt and Yang (2004) introduced the corpus in their study on text learning and automatic folder

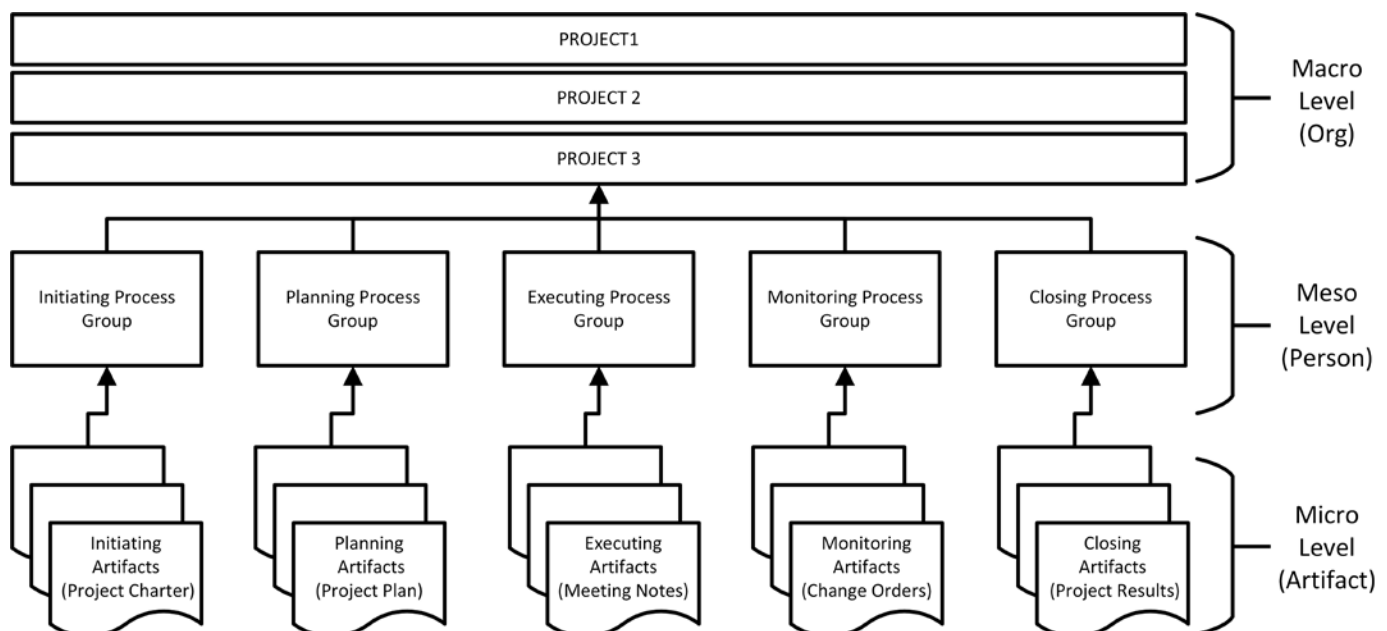


Figure 3. Levels of Activity Analysis (Spinuzzi 2013) Adapted for Project-based Organizations

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classification, followed shortly by Shetty and Adibi's (2004) research on link, network, and textual analysis. This early work was not interested in actual attachments contained in email and, due to size constraints, the attachments were excluded from their analytical databases. A consortium called EDRM, however, has made a version of the Enron Corpus available in .PST file format that contains original attachments (Cassidy & Westwood-Hill, 2010). Using this version of the corpus, we introduce a historical case study of an individual project worker's email and use it to assemble a meso-level activity system model of project work.

Case Study

We focus our historical case study on the Enron email folders of a single individual known as *Stokley*. As the Enron corpus is a publicly available dataset, we do not attempt to hide the identity of the *subject*, nor is our interpretation of the data meant to make any personal claims about the individuals represented. Our case study attempts to answer the following questions. What components of an individual's email can be used to inform and develop activity system models allowing reflective capability for project work? What components of the activity system are left underdeveloped through an analysis of email alone? What types of questions develop during the modeling exercise that would assist in the reflection process? Finally, what skills would be required on behalf of the analyst conducting this work to develop the reflective models? By answering these questions throughout the case study of a publicly available email source, we hope to demonstrate how a technical communicator like Natasha might approach the development of a reflective activity system model for any project worker in the workplace. The modeling of an activity system is typically conducted with the person or *subject* of the activity. Since we were unable to conduct our analysis with *Stokley*, the owner of the email folders, we pose, but leave unanswered the questions a technical communicator might highlight, were *Stokley* available to reflect on his work enshrined within the corpus.

Preparing Stokley's Email for Analysis

Although email possesses defined components such as the body, the subject line, distribution requirements, and time stamping, it remains extremely unstructured for data analytics, especially when attempting to

include attachments in the analysis. To help facilitate our investigation, *Stokley's* email folders were rendered in Microsoft Outlook and .PST files for each folder were converted to Microsoft Excel. Each email was downloaded as a row of data with each of its components detailed in columns. Each email attachment was saved into an ordered folder structure on a server and linked directly with its message contained in the MS Excel file. Each attachment was opened, reviewed, and coded as belonging to one of the five PMBOK process groups. This coding was based on adherence to communication genres that address the goals outlined for each PMBOK process group. The assessment and selection of project artifacts is the most important part of determining which emails should be included in the analytic frame. Although the owner of the email would be able to provide definitive answers on what artifacts should be included, the selection process offers a unique space for technical communicators like Natasha to facilitate review of communication genres in project work and develop questions related to their importance, structure, and role within the overall activity system. Notes were taken to describe the function of each attachment and to indicate any information that may identify its association to a particular project. The *Stokley* data set represents messages between the dates of March 30, 2001 and October 25, 2001, and contains 21 folders, including 1,340 emails with 633 unique attachments, as detailed in Figure 4.

Stokley Email Folders	Attachments								Messages
	Excel	Word	Text	PDF	PPT	Image	Other	Total	
Enron Corp	0	1	0	0	0	0	0	1	19
ISO Client Rep	49	19	1	7	1	3	0	80	45
ISO INFO	1	8	0	0	0	0	0	9	29
ISO MRKT INFO	13	35	0	11	0	1	0	60	128
Mid Markt	4	0	0	0	0	1	0	5	34
Murray	6	17	0	0	5	0	3	31	76
Projects EES	0	2	0	0	0	2	0	4	4
Projects EES Banding	4	3	0	0	1	0	0	8	14
Projects EES Banding KPMG	7	10	1	1	5	0	1	25	40
Projects EES Brenda Herod	0	0	0	0	0	0	0	0	6
Projects EES Ercot	1	11	0	0	0	0	0	12	12
Projects EES INFO	3	4	0	0	3	0	0	10	15
Projects EES Intra-Month Book	1	0	0	0	0	0	0	1	5
Projects EES IT	0	0	0	0	0	0	0	0	7
Projects EES Metering & Forecasting	8	7	0	0	1	1	2	19	29
Projects EES Neil B	6	1	0	0	0	1	0	8	19
Projects EES Todd Bushy	3	3	0	0	0	0	0	6	5
Projects SQMD	1	9	0	0	2	0	0	12	35
Regulatory	2	1	0	1	0	0	0	4	13
Volume Mang	35	28	1	2	0	1	4	71	235
SENT	201	44	2	2	9	5	4	267	570
	345	203	5	24	27	15	14	633	1340

Figure 4. Stokley Email and Attachment Counts by Folder

In *Stokley's* absence, we looked for empirical clues within the corpus to help focus our investigation to a specific project. Again, this highlights the need for skills

possessed by technical communicators. Although a subject may select certain artifacts to be included in the analysis, a review of the project communication genres by a technical communicator can offer the subject greater insights into the structure and role of their artifacts in ways that may be lost to the subject due to familiarity and routine. The use of these artifacts can reside at a subconscious level of operation, and not until questioned will the subject be encouraged to reflect on the artifact to determine if it is in fact facilitating the work that they would expect it to. A single MS Excel document named “EES Activity Listing 071201.xls” provided a high-level monitoring document that outlined a comprehensive task list by project. This document revealed that the Enron Energy Services (EES) organization had five distinct projects running in parallel during the period represented by *Stokley’s* email. These projects included Phoenix, Gas Solutions, Ranger,

Genesis, and Power Solution. Given the prevalence of the attachments available, we narrowed our investigative focus to 73 unique emails associated with 19 distinct attachments coded as belonging to the *planning* process group of the “Ranger” project. This project governed the development of a data warehousing initiative and involved project coordination across the Enron entity and external partners CSC and KPMG.

A Meso-level Focus on the Planning Process Group of the “Ranger” Project

A review of the 19 identified documents and their 73 associated emails provides the basis for deriving an activity system model for the *planning* process group of the “Ranger” project. The activity system model, as shown in Figure 5, opens the possibility for reflection. Each component of the model is discussed and questions are posed based on reflections raised.

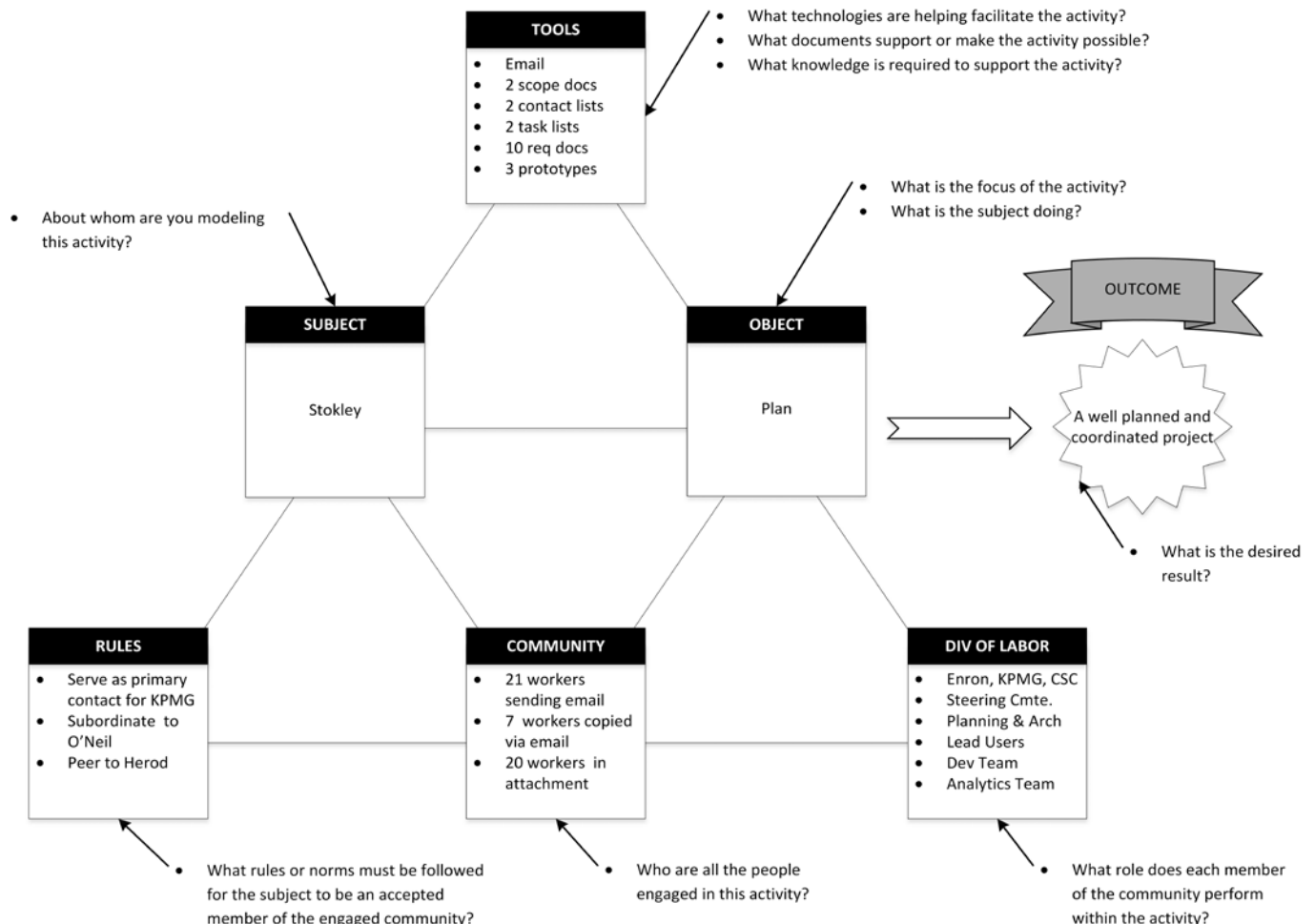


Figure 5. Ranger Project –Planning Process Group Activity System

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Since we were unable to conduct our analysis with *Stokley*, we aimed merely to document questions one might highlight were he available to reflect on his work enshrined within the corpus.

The subject (*Stokley*)

As stated in our overview of Activity Theory, we hold the human *subject* of the activity system to a single individual. The effort to model the project-based activity system using an individual's unique collection of email exposes a project worker to an empirical frame against which he or she can reflect, learn, and grow. Our articulation of the *planning* processes for project “Ranger” is based on information available only through the email folders owned by Enron's *Stokley*. In this way, our historical case study mimics the kind of workplace email analysis that could be facilitated by a technical communicator like Natasha and conducted for any individual project worker in a PBO.

The object (planning process group—“Ranger” project)

As previously outlined, our focus on the project activity system begins with the selection of one of the five PMBOK process groups so that we can identify and focus on the mediating attachments at play. By focusing on a specific process group, a project worker can compartmentalize his or her analysis to individual stages of the project lifecycle and identify specific attachments or project work genres of communication that might warrant a deeper level of activity-based analysis. We focused on the *planning* process group to identify early stage artifacts used across this multi-organization initiative.

The mediating tools (email attachments)

We identified 19 attachments related to the “Ranger” project when focusing on the planning process group. The attachments included two variations on scoping documents, two variations on contact lists, two variations on task lists, ten requirement documents, and three prototype documents. An initial reflection might ask whether this list of documents feels complete for the *planning* processes of the project. What documents seem to be missing? What planning documents might be shared across other process groups? Why might *Stokley* not have received certain planning documents through email when he knows that they must exist? What might this say about how the project community at large is informed about the planning of the project?

What opportunities might this information provide to improve communication?

A cursory view of the attachments immediately surfaces potential contradictions that might emerge in their use during the *planning* processes of the “Ranger” project. For example, the two scoping documents provide different levels of details surrounding the same project. One scoping document is a robust MS PowerPoint detailing the project goals, the project membership, the project timeline, and major milestones. This attachment was created by a member of Enron and forwarded to a member of the KPMG team. The KPMG team member then forwarded this artifact to *Stokley*. Another scoping document, simply designed in MS Word, offered a similar goal and timeline with different project membership and different tasks. This scoping document was shared with *Stokley* by an Enron employee named *Frasier* and was contextualized with email content that indicated the scope of the project had been altered significantly since inception. These two scoping documents, although centering expectations around a larger community, had very little overlap in observed distribution channels according to the evidence available in *Stokley's* email. In this example, it is possible to begin to see the learning power available in the contradictions that emerge across mediating tools. Was the entire project membership changed abruptly? Were the variations purposeful and meant to communicate different aspects to differing parts of the organization? Do these conflicting documents highlight any realized communication gaps in the communal understanding of the project? Did these variations cause issues in the project? How might one control for this type of communication in future projects? This is the very detail that becomes rich for analysis as project-based attachments are considered in their mediating impacts across a given activity system. Not every attachment involved in an activity system may find its way into the analytical frame. The goal is not to offer definitive documentation of everything that occurred. It is merely to provide an informative view of the possibilities of contradiction that might have been introduced within the activity, leading to a greater understanding of the activity system in general.

The community

Using the collected attachments as a starting point, a researcher can identify the contributing individuals

who form the project *community*. By triangulating the attachments, the subject lines of the email messages carrying the attachments, and the dates of the emails, a group of individuals who have either participated directly or been copied on the email threads can be identified. Using our 19 unique attachments as a starting point, 73 unique emails were identified as pertaining to the conversation surrounding the artifacts. From this email list, 21 unique individuals initiated emails and 7 unique individuals were copied on emails but never directly contributed. In addition to the individuals participating in the exchange of emails related to the planning processes of the “Ranger” project, a review of the obtained attachments surfaces an additional 20 project workers who do not appear in the distribution lists of the analyzed emails. Together, the identified project *community* appears to consist of 48 unique project workers. Again, this data is likely not a definitive list of the exact membership of the project during this group of processes, but it does surface empirical details for project workers so they can learn by finding contradictions in their mental model of the project *community*. Who was included in the email *community* that was unexpected? What might this tell you about the exposure of certain project artifacts? Were any known members of the project *community* excluded from email communications when important artifacts were circulated? On purpose? On accident? What impacts did these inclusions or exclusions have on the project *community*? This information could have, for example, broadened *Stokley’s* understanding of the breadth of the *community*, highlighted his position within the *community*, or indicated a need to broaden or condense communication strategies to reach a more targeted *community*.

The mediating division of labor

Upon analysis of the collected attachments and their associated email distribution lists, it becomes clear that several communities of practice were at play within the planning process of the “Ranger” project. Three primary organizations (Enron, CSC, and KPMG) emerged as distinct entities based on the email distributions alone. That list broadened to include IBM, Avista, and Faser when the actual attachments were reviewed for project membership. Outside of these formal organizational boundaries, attachments also provide insights into a more nuanced organization of labor across the project.

One attachment provides a team diagram hierarchy that references lead users and those serving on a steering committee, a planning and architecture team, a development team, and an analytics and verification team. These project divisions included members from CSC and Enron; however, KPMG project workers were not mentioned in this documented structure. Another attachment provides a responsibility structure that calls out a core team, extended team, and management sponsors with associate roles for things like reporting, analytics, IT, invoicing, and information coordination. Once the *community* is brought into the analytic frame, a project worker can begin dissecting how each individual member of that *community* mediates the work and tasks, again comparing empirical evidence against assumed mental models. Were members of the project *community* adhering to their roles? Were they overstepping their bounds and potentially interfering in the work of others? It would not be uncommon for a project worker to find examples of an individual performing tasks outside of the expected *division of labor* or conversely failing to perform on expected tasks. These examples of contradiction enable a project worker to question, grow, and directly alter the future trajectory of their project engagement.

The mediating rules (power and boundaries)

We showed how the *division of labor* mediates a *community’s* effort within an activity, but attention must also be paid to the *rules* that mediate a project worker’s relationship with their *community*. Understanding the *rules* of power, *rules* of communication, and the limitations or availability afforded individuals throughout the *community* is important to determine the *subject’s* ability to affect the desired outcome of the activity. *Rules* are rarely explicit, especially when using email to derive historical remnants of the activity system. Using a combination of language and tone found in the body of emails, as well as indications derived from the frequency of emails, one can interpret certain social *rules* or norms mediating the relationship between the *subject* and the *community*. Relaxed grammar, use of slang, and informal phrasing might indicate that the *subject* is more familiar or tightly bonded with the *community*. More formal, carefully worded emails might indicate the *subject* is adhering to *rules* defining positions of power or subordination. Reviewing the content of several emails, patterns

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of communication suggest that *Stokley* maintains a subordinate role within the project to an individual named *O'Neil*. More informal communication interactions with an employee named *Herod* suggests a peer-like relationship. It remains difficult to ascertain *Stokley's* relationship with *community* members from the CSC organization found in attachments, as no emails were exchanged within the frame of analysis. Email frequency, or the number of emails shared between individuals, can also highlight potential *rules* that mediate relationships with the *community*. For example, the large number of emails sent to *Stokley* from KPMG employees suggests *Stokley* could be the primary contact for the external company when communicating about planning documents. This is seen most notably through the number of emails sent by a KPMG representative named *Galvan*. If *Stokley* were available for reflection, one might consider asking questions about his relationship with the *community* at large. How do various social *rules* mediate interactions and communication between companies involved in the project? How is he expected to communicate across company divisions? How are other companies expected to communicate with him? Who is the client and who is the provider? Whom must he keep informed? Whom does he protect? Who protects him? What violations would jeopardize his standing within the multi-company *community*? How might a violation of these norms and *rules* affect the progress of the project?

A Micro-level Focus on Specific Attachments

Once a meso-level view of the activity system model is established for a given PMBOK process group, the project worker and technical communicator can dig even further into the specific impacts a single tool or attachment might be having on the project system. This can become especially important for technical communicators intending to improve the impact of a given document across the communication system. By placing a specific email attachment as the *object* of an activity system, one can use the same modeling techniques described above to uncover potential contradictions in the development of the specific document. In our field, researchers have produced many instructive examples demonstrating how Activity Theory can support this type of micro-level analysis of texts and the work they do (e.g., Winsor, 2007; Bracewell & Witte, 2003; Russell, 1997). Such

micro-level analysis of individual texts and the activities they support falls outside our meso-level focus on activity systems in project work but remains a valuable tool nonetheless.

Discussion

Our case study demonstrates the underlying potential that email can provide in the development of reflective tools for project workers. It also highlights the emergence of a research role for technical communicators within project work. By focusing specifically on a collection of email attachments that mediate one of the five PMBOK process groups in the project lifecycle, it is possible to use contextual, temporal, and distributive qualities of email to derive an activity system model rich with learning potential. Once established, project workers can compare their derived activity system against personal mental models, established charters, or similar models created by project team members, with the purpose of identifying key contradictions that pave the path to a greater understanding of their work and their *community*. With the richness of information uncovered at a meso-level of activity, the same modeling methodology can be applied to specific *objects* or email attachments that contribute to the overall project process group.

Returning to the series of questions we offered at the outset of our study, we now review our findings by modeling our methods for Natasha, the technical communication specialist. Through this review, we also highlight the skills required to conduct the modeling exercise. We end with a discussion of the limitations encountered through our case study and reflections on ethical considerations.

The AT Modeling Method from the Technical Communicator's Perspective

At the beginning of our study, we introduced Natasha, a technical communication specialist pondering potential opportunities for engaging more effectively in project-based work. Employing the tools and techniques in our study, Natasha would, we believe, be equipped to support project workers in their efforts to reflect and become more efficient in the way they conduct project-related activities. Although our case study utilized an archival set of data in the absence of its owner, the methods outlined and questions surfaced could be used by most project professionals today. By following

the suggested guidelines in Figure 6, a technical communication specialist like Natasha could construct reflective activity system models for any project worker, regardless of the type of project work assessed.

Natasha would simply need to identify a project worker (*subject*) interested in the reflection exercise. Together they would select a specific project and determine the period during which the project took place. Natasha would then collect emails sent or received by the *subject* during the identified period using the time stamp afforded each email. From the prepared dataset, Natasha would present a list of attachments and ask the *subject* to help determine which attachments were associated with each of the five PMBOK process groups. Any attachments of a personal nature or those not pertaining to the project of focus should be dismissed. Natasha may find that certain attachments could logically fit in more than one PMBOK process group. This would require her skills in rhetorical analysis and the evaluation of project communication genres to help the subject reflect and determine the most appropriate process group to be assigned based on the communication context carried with the attachment. With this information, the entire project frame is available for assessment. The next step is to determine the PMBOK process group (initiating, planning, executing, monitoring & controlling, and closing) that the *subject* would like to focus on and use that as the *object* to derive the construction of the meso-level activity system model. Once selected, only the attachments coded for that process group and any associated email threads pertaining to those

attachments should be isolated for further evaluation. With this dataset, Natasha could assist in the reflective process of deriving the activity system model. Each identified component should be discussed and the results written down inside the conceptual activity model boxes (see Figure 1). The *community* can be identified by piecing together references to individuals found in the distribution lists of the emails (To, From, CC, BCC) and any references to individuals made within the content of the emails and attachments. *Rules* that mediate the *subject's* relationship with the exposed *community* can be derived by analyzing frequency of the emails between the *subject* and other members of the *community* coupled with examinations of communication formality represented in the body of the emails. The *division of labor* that mediates the *community's* role within the activity can be assessed by evaluating the roles of the individuals emailing attachments (*tools*) during the defined PMBOK process period. The *rules* and *division of labor* components are difficult to model from email directly. These components require some reflection and *subject* interviews to tease out the final data to be modeled. This should not raise concern, because the whole point of the modeling exercise is to promote reflection and learning. As each component of the activity model is derived, reflective questions should be posed to the *subject* to determine applicability. Through this feedback loop of model development, the *subject* will have the opportunity to reflect and increase his or her understanding of the systemic nuances that facilitate the project work. The *subject* can compare empirical

ACTIVITY	ACTIONS	MODEL COMPONENT
Analysis Framing	1. Identify the person you would like to assist with an activity-centric reflective model 2. Identify the project of interest to that person 3. Identify the date range of the project of interest 4. Collect emails containing attachments that fall within the identified date range	Subject
Meso-level Activity System Construction	5. Identify the project phase of interest (initiating, planning, executing, monitoring, closing) a. Identify the attachments in the collected array that pertain to the project phase of interest b. Identify the project community derived from email distribution lists and attachments c. Identify rules that mediate the relationship between the person you are assisting and the exposed community d. Identify the role / responsibility of each community member exposed for the project phase of interest e. Identify the desired outcome for the project phase	Object Tools Community Rules Division of Labor Outcome
Micro-level Activity System Construction	6. Identify a single document / attachment from the macro level collection a. Identify the internal / external tools used to create this document b. Identify the project community derived from email distribution lists and attachments c. Identify rules that mediate the relationship between the person you are assisting and the exposed community d. Identify the role / responsibility of each community member exposed for the project phase of interest e. Identify the desired outcome associated with the use of this document	Object Tools Community Rules Division of Labor Outcome

Figure 6. Method Matrix for Model Construction

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evidence of project work to his or her personal expectations and understanding of the work system and begin identifying specific contradictions to improve for future work. It is very likely that specific documents will surface as holding key influence over certain project processes. Robust distribution lists or multiple versions of an attachment existing throughout the analytical frame are key indicators of the importance a document carries throughout the project. These documents might suggest that Natasha and her *subject* model a micro-level activity system, where that specific document becomes the *object* of analysis. Understanding how key project documents are created and used provides specific opportunities for Natasha to help the *subject* improve project impacts. These activity system models can be used for personal growth or can be leveraged across the project *community* as evidence for improvements to be shared in retrospectives or project postmortems.

Using this approach, a technical communicator like Natasha would have the means to engage in a rhetorical analysis of the project work in which she is embedded. She would have had the means to understand the situated impact of project management documents (*tools*) and an understanding of the networked nuances of collaborative projects. She could help specific project workers think more broadly about the true membership of the project *community* and reflect on the ways that communication flow impacts shared understanding. She could help point out specific social norms and power positions (*rules*) that might be affecting access to information, and she could help identify specific instances when members of the *community* seem to be stepping out of bounds and violating expectations of the *division of labor*. All this empirical information helps provide concrete examples from the project work system that can be modeled, assessed, and improved. Although our case study and examples have centered on a post-project methodology, this type of analysis also provides potential to correct the project work system while in process. After all, it would be better to identify system issues during a project instead of focusing on them once the project is complete. Although post-project analysis offers many opportunities for growth and learning, there is no guarantee that all the lessons learned on one project will specifically apply to future configurations of project work. The modeling effort, however, will likely expose organizational nuances that affect many if not all the projects across the PBO.

Limitations to the Modeling Methodology

The data structure of email is itself a limitation, as anyone who has worked with it analytically can attest. The unstructured aspect of the archived material limits the span of analysis, especially when attempting to incorporate attachments. Individual folder structuring techniques, message threading, length of body content, attachment naming conventions, and attachment versioning are just a few of the issues a researcher must conquer when attempting to work with email data analytically. Until a tool exists to help flatten and organize this data in ways that make it more scalable for analytics, using this modeling approach to consider activities across larger project communities will be challenging.

Gaining access to other individual's email could provide an obvious limitation where privacy is a concern. Although workplace email should be related to business, common practice would suggest that it remains a collage of personal and professional communications. Privacy concerns would need to be addressed within each organization. This could be somewhat mitigated if the technical communicator was seen as a trusted role with special access. This would be similar to many IT and public records professionals working across organizations today. Working alongside the email's owner and having the owner remove messages and content of a personal nature prior to modeling could help in mitigating privacy concerns.

Ethical Considerations

Our suggested approach for using email to develop activity-centric models for project reflection is not without concerns. First, we want to be mindful of the socio-technical aspects of this type of work. Although it is not our intention, we are fully aware that as email data becomes increasingly mined for project-based insights, project worker use of this workplace resource could evolve for better or worse. Second, we understand that email provides only one source for residual artifacts and communications created across the project lifecycle. Additional sources should be leveraged in addition to email with the intent of deriving a more complex understanding of the project activity landscape. We suggest email as a tool for initiating the analysis because of its empirical archival nature and for its ability to carry content and artifacts across the rather complex and often invisible boundaries of project work. There

is nothing wrong with expanding the analysis beyond email once the empirical frame has been established.

Supporting reflection among project workers may also facilitate thinking about ethics in practice. For example, seeing contradictions in work certainly opens speculation about why things are and how they should be. Beyond this, the model forces consideration of *subjects* and their *object* orientations as well as their means of acting. These considerations are the basis for thinking about ethics of individuals and the ways they choose to act. Given the questionable and even illegal actions associated with Enron before it dissolved, more informed views of project work might have facilitated broader awareness of how project activities were aggregating contradictions that deserved greater scrutiny.

Conclusion

Technical communicators like Natasha have a vital and important role to play in both the successful derivation and deployment of the reflective modeling we propose for project workers. The technical communication community could help solve the technical and analytical challenges posed by robust communication engines like email. They would also provide much needed guidance and expertise as project workers tackle their activity-based contradictions and learn how to effectively incorporate their newfound knowledge back into the project lifecycle and the socio-cultural fabric of their PBO.

Given the known complexities involved with working through an activity-centric analysis, especially in areas of collective motivations and distributed work, we hope that this work will renew conversations and engagement with activity theory in pedagogical curriculums, especially those related to project management. Activity Theory's ability to highlight the role of mediating tools or communication genres (project documents) within the situated context of project activities offers educators a tangible tool to demonstrate the power a single communication artifact can carry across an entire work system. With its focus on human development and learning, it highlights personal and social contexts that can constrain and support project work. It helps provide a common language to discuss emerging insights into project work and reinforces social awareness of work systems in general.

With the increasing projectification of work in today's economy, we contend that it is important for organizations to broaden the feedback loops in such work beyond traditional post-mortems and retrospectives. Technical communicators, trained to engage in holistic analysis of project work and able to surface related elements of cultural context as recommended above, will be better equipped to meet this challenge.

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Commentary on *Technical Communication* Special Issue on Project Management: Revisiting the Prescriptive/Descriptive Continuum in Action

Stan Dicks

Introduction

It is a pleasure to comment on the articles that Benjamin Lauren and Joanna Schreiber have assembled for this special issue of *Technical Communication*. The articles show the breadth and diversity of enterprises and industries in which technical communicators work and must manage their information development projects. I will bring to this task my 40 years of experience managing technical communication projects and/or teaching and researching how we can best manage the difficult business of developing information products.

The Prescriptive/Descriptive Dichotomy in Project Management Research

One convenient way of discussing project management literature is to look at where it stands on the description/prescription continuum. Some refer to description/prescription as a dichotomy, but I prefer to see them as on a continuum. Rarely is there a purely prescriptive statement about project management, because it is necessary to describe the methodology in question first in order to prescribe it. And rarely is there a purely descriptive treatment of project management methodologies without at least some implied judgment about it and hence a degree of prescription. If we look at articles in the Society for Technical Communication's conference proceedings and in other literature, we see both types. A common article describes a method that a group has tried and found successful and advocates for other groups to try it also; hence, it contains both description and prescription.

By far, the most prescriptive of the articles in this issue are those of Hackos and Fisher, who report on standards for information development issued by the

International Organization for Standards (ISO) and, more specifically, on ISO/IEC/IEEE 26511: Systems and software engineering—requirements for managers of information for users of systems, software, and services. The ISO standards are largely prescriptive; they assert what practitioners must do in order to conform to the standards and to have their projects ISO certified. They require that organizations develop systematic, repeatable methodologies for product development and that they follow those methodologies on every project they undertake, documenting that they have done so in order to allow ISO auditors to verify that they are continuing to adhere to the standards.

For a further point of discussion related to project management literature, it is informative to compare each article to the highly prescriptive requirements of ISO standards and to examine whether the industry under examination concerns itself with such standards, or to question whether it even should. So, in this commentary, I will examine each of the articles with a consideration as to where its methodologies stand on the prescription/description continuum and where it stands related to ISO standards.

The Articles in the Special Issue on the Prescriptive/Descriptive Continuum

In "Information-Development Project Management as an International Standard," Hackos explains the history of the development of the ISO standards and makes the case for their more widespread adoption by developers and for their use in technical communication training and education. Hackos's two books, *Managing Your Documentation Projects* (1994) and *Information Development: Managing Your Projects, Portfolio, and People* (2007), describe the philosophy

and methodologies behind the ISO standards and explain how to implement and use the necessary methodologies. I have used both of her books, along with my own, *Management Principles and Practices for Technical Communicators* (2004), in our graduate course in project management for technical communicators. I believe in the philosophies proffered by Hackos and in the basic ideas of the ISO standards. I am willing to concede that in smaller companies and in some industries, strict adherence to the standards might not be necessary, but I would still contend that following the basic concepts outlined in Hackos's texts, and, for example, in my chapter in *Solving Problems in Technical Communication* (2013), is necessary to produce consistently high-quality information products.

Lori Fisher elaborates on the reasons for ISO standard 26511 and on the methodologies it requires, "the revised ISO standard continues to require a base set of metrics to be used across an organization for all projects, and a documentation plan that includes the metrics to be used and the data to be collected, at the outset of any given project." This standard defines the key roles that project managers must play, "related to quality:

- Identify the set of metrics to be used to assess quality across projects, including defects and customer satisfaction.
- Ensure a process is in place as necessary to collect the specific measurements for each project.
- Use the measurements to correct defects and, through root-cause analysis, improve the document process.
- Where possible, use customer feedback to validate the measurements of quality and customer satisfaction.
- Strive to develop predictive metrics that can be measured in-process (during development) to take preventive action before content is delivered."

As Fisher points out, these steps should be followed regardless of the project methodology being used, even on agile and other newer approaches.

Again, while the highly prescriptive requirements of the ISO standards might not apply in all cases, it is difficult to prepare consistently high-quality documents without using a consistent methodology and measuring the results of the information products that it develops.

In "Project Management, Contradictions, and Textualized Activity: Supporting Reflection in Project

Based Organizations," Doug Divine and Mark Zachry propose that technical communicators have an excellent opportunity to improve project communications by identifying contradictions and providing reflective feedback loops for project team members. They propose doing so by studying project emails and attachment documents. The authors use the Project Management Book of Knowledge (PMBOK) to analyze project email exchanges, following the PMBOK's five types of artifacts: initiating, planning, executing, monitoring, and closing. Using emails from Enron, one of the few corporations for which we have an entire email corpus, they analyze a specific project and, on that project, a specific employee. They study the interactions of that individual, via email, with other members of the community and the complex variations in those interactions in terms of power, subordination, equality, and liaisons with non-employee sub-contractors. They suggest that technical communicators could perform similar analyses to help show fellow project workers what kinds of messages and attachments are most effective during the various phases of a project, thus improving those workers' communication and, hence, the overall project. They point out that actually using this capability might be problematic due to privacy considerations, but, assuming that the technical communicators are trusted by their fellow employees, it would still be possible.

The authors use an ingenious combination of activity theory and the PMBOK to show how workplace email might be analyzed and categorized, and how it might be used to improve project communications. They describe the methodology they used and prescribe its use for other practitioners. Because it relates to internal communications and not to information development per se, their proposed practice does not fall under ISO considerations.

In "Filling to Capacity: An Exploratory Study of Project Management Language in Agile Scrum Teams," Erin Friess uses discourse analysis to study transcripts of scrum team meetings over a period of time on a single project that is using agile scrum methodology. Her analysis shows that much of the language used in such meetings follows somewhat predictable patterns, depending on the type of meeting; however, one interesting exception seems to be an inordinate amount of "team maintenance" discussion occurring in almost all of the meetings. It is not surprising that extra team maintenance discussion would occur when a relatively

Revisiting the Prescriptive/Descriptive Continuum in Action

new project management method such as scrum is being employed. It would be interesting to see if the amount of such discussion diminishes over time or if it is somehow inherent in and a necessary part of the scrum methodology. And indeed, Friess states that her study should be considered preliminary and suggests other areas of research where the methodology she followed could be used to further investigate how scrum teams function. Her article is more descriptive of what is occurring in the field than prescriptive, although additional research following her methods may lead to some prescriptive guidelines for how scrum teams can operate more effectively. Also needing further study is the lack of planning language she noted, even in the planning and kickoff meetings, where one would expect a high concentration of such language. If we grant the assumption that ISO standards for planning should still be followed when teams are using alternative project managements methods, then the lack of such language could be problematic.

In “Flexible Project Management Processes: A Case Study of a Distributed Trade Organization,” Katherine A. Robisch conducts field studies of a trade organization and argues that this may be a case where less formal project management methodologies work better than more strictly codified systems such as those espoused by ISO standards. She shows how the extensive technical communicator interaction with audience members leads to new and unexpected rhetorical situations, and how flexibility is needed to respond to the unusual partnering/authoring opportunities that arise. As she puts it, “This rhetorical situation also means a top-down, prescriptive approach to project management could constrict writers or limit their agency to develop expertise. With multiple points of interacting with the audience, writers have to develop and refine flexible processes for managing projects.” Even with that philosophy, the organization she studied eventually saw the need to document some of its processes, which “helped to stabilize work into repeat processes.”

Robisch makes the case for organizations doing distributed work, such as most trade organizations, that overly prescribing project work flows would impede the “unofficial feedback loops and multiple methods of communication.” The nature and goals of a trade organization may be so different from those of a large software firm or manufacturer that nimbler, less codified systems will in fact work better.

In “Novice Engineers and Project Management Communications in the Workplace,” Elaine C. Wisniewski reports on a mixed-methods case study she performed of novice engineers in the workplace. She analyzed the project management activities of a group of novice engineers and also studied their managers and researchers to triangulate data collection from various points of view. She discovered that novice engineers begin project management activities immediately, and that they often have responsibilities that they may not have needed or encountered while in their academic studies. She found four main themes that novice engineers need to work on, and that, by implication, might be introduced into engineering curricula:

- knowing how to provide context, the “big picture,” before discussing technical details with an audience, particularly if it contains non-engineering personnel
- providing clear and appropriate written and visual communication
- providing confident and timely content to the audience
- increasing interactions with downstream audiences, such as technicians and operators

So, she is prescribing that engineering pedagogy should cover these areas, although she acknowledges that in some cases that is difficult to impossible to do. Because her study primarily concerns engineering communication, it does not interact with the ISO standards.

Finally, in “Toward an Encounter Team Model of Clinical Project Management: A Needs Analysis of a Family Health Center,” Dawn S. Opel, Cathy Abbott, and William Hart Davidson conduct a needs analysis of a medical clinic with an eye toward improving communication and, hence, workflow before, during, and after patient encounters. As they put it, “technical communicators’ expertise is needed to ensure the quality of the writing processes and communication culture of an organization.” However, as they experience themselves, cultural and professional role habits can undermine making the changes necessary for improving communication processes.

It is interesting that among their findings are that daily team meetings, similar to those employed in scrum, greatly benefit the communication flow of a clinic, but because staggered work schedules make

such meetings difficult for large parts of the clinic, the practice does not take hold. They also find that more planning is needed, along with more of the sort of structure called for in the ISO standards, but that, as they put it, “cultural changes are difficult in professional settings.” The paper describes methodology for studying communication and workflow in a clinic, and prescribes more technical communicator involvement for improving that communication and work flow.

Embracing A Prescriptive/ Descriptive Continuum

It is interesting that this set of articles contains some articles that are almost entirely prescriptive and some that are almost entirely descriptive. However, as I maintained earlier, even the prescriptive articles contain plenty of description and the descriptive ones either imply or state explicitly that they are prescribing that practitioners and/or researchers should follow the methodologies they are describing. It is not surprising that this prescriptive/descriptive continuum should appear prominently in the area of project management, which is a part of practice that nearly all technical and professional communicators must perform, whether reluctantly or not.

The tension we see related to project management literature is actually a part of the larger tension we see in the entire field of technical and professional communication between practice and research, between doing and observing, between the “real world” and academia. It is good for us to visit this tension occasionally to remind ourselves that our discipline, as any other, has its own body of literature but, at the same time, is based on the work that practitioners do every day.

Mirel and Spilka’s collection, *Reshaping Technical Communication* (2002), explores this tension and has chapters suggesting ways the two worlds can interact so that academics are more aware of practice and practitioners are more aware of academic thinking and insights. See, for example, Bernhardt’s “Active-Practice: Creating Productive Tension Between Academia and Industry.” The authors suggest many other ways that practitioners and academics can interact, such as internships, field trips and studies, guest lectures, usability testing, joint meetings with STC members and student chapters, and collaborative research and design projects.

Conclusion

Taken as a whole, it is very interesting to read through this collection of papers and to see which of them take primarily descriptive approaches, which take primarily prescriptive approaches, and which contain both. Further, it is interesting to note how strongly the authors advocate for highly prescriptive approaches, such as those outlined in the ISO standards, and which of the authors proffer approaches that vary considerably from those standards. Aside from those two considerations, they also show the current state of practice and of research in technical communication project management.

I am happy to see a collection of articles such as these that show that tension and that concern themselves both with the practice and the discipline of technical and professional communication. I would encourage everyone involved to keep doing what they are doing. We need practitioners like Hackos, Fisher, and Dicks prescribing, based on our own work experiences and our observations of many best practices in the workplace—practices and methodologies that will help practitioners. And we need researchers observing, analyzing, synthesizing, and reporting on the practices they witness. If both groups continue to contribute in those ways, the profession will grow richer and fuller both in its day-to-day practice and in its academic study of that practice.

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About the Author

Stan Dicks began his career in academia at Wheeling Jesuit University and then left for industry, where he worked at United Technologies, Bell Labs, and Bell Communication Research managing technical communication groups as well as other functions. He returned to academia when he moved to NC State 20 years ago. At NC State, he directed the MS in Technical Communication for some 15 years. His book, *Management Principles and Practices for Technical Communicators*, was published in 2004. He is available at sdicks@ncsu.edu.

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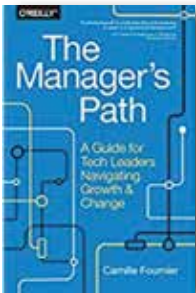
Review of Four Books on Management

Angela Robertson

Introduction

I knew the task would be challenging when I was asked to write a series of book reviews focused on management. In my daily work of managing a large team, finding time for reflection is necessary, yet rare. Writing this series was a forcing function to not only read about the topic but allocate time for a different type of introspection. Thank you for this opportunity. I hope you enjoy reading this series as much as I enjoyed working on it.

The Manager's Path: A Guide for Tech Leaders Navigating Growth & Change



If you're looking for a book that guides you through the levels of management starting with technical (tech) lead and progressing to VP, *The Manager's Path: A Guide for Tech Leaders Navigating Growth & Change* is for you. As the title suggests,

Fournier assumes her reader is an

engineering manager with an engineering background. I found the material applicable, although the engineering assumption was mildly irritating. She did not need to scope her audience so narrowly.

The book begins with a definition of the manager role along with a section on mentoring. Managers are responsible for the following items:

- One-on-one meetings (p. 2)
- Feedback and workplace guidance (p. 3)

There is also some responsibility for training and career growth, although that responsibility varies by company (p. 5).

Mentoring is a management aspect that has a separate chapter which explains the responsibilities of mentor and mentee. In this section, I read some of my favorite sentences: "Listening is the first and

most basic skill of managing people. Listening is a precursor to empathy, which is one of the core skills of a quality manager" (p. 13).

The chapter after mentoring, tech lead, might seem like a curious chapter to include. I found this section a worthy inclusion, because tech leads often must decide if they're going to stay in a technical individual contributor role or if they're going to take on people management responsibilities. Fournier writes about this decision, so people have some thoughtful insights into whether the change to people management makes sense for their situation (pp. 40–44).

For the tech leads who transition to management, the next two chapters talk about how to manage individual contributors. The "Managing People" chapter does a great job of explaining the different types of one-on-ones (pp. 54–57). If you're new to management, I expect you'll find these pages some of the most useful. The "Managing a Team" chapter has some clichés, but there's one topic included that is worth highlighting: "Don't turn a blind eye to simmering issues" (p. 87).

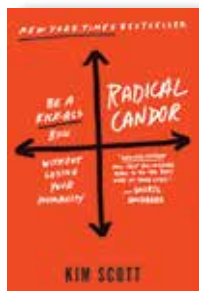
Think twice before going into management if you find yourself avoiding conflict. You will manage people, and conflict is going to be unavoidable. If you don't have the skills and inclination to deal with it, you're not going to be an effective manager. Fournier's treatment of this topic is applicable, so I recommend reading it.

Although the guidance at the start of Chapter 7, Managing Managers, is less applicable, it's comforting to read. Fournier writes, "You'll get a whole new sense of your strengths and weaknesses as you work at this level" (p. 126). The chapter is not "the must read" I find some other sections to be, but the description of what it's like to manage managers for the first time is on point.

One last must-read section: a description of cultivating trust and what happens when you don't have it on page 179. As you can tell, I'm a fan of this book and recommend you add it to your to-read list.

Review of Four Books on Management

Radical Candor: Be a Kick-Ass Boss Without Losing Your Humanity



I love *Radical Candor: Be a Kick-Ass Boss Without Losing Your Humanity*. I have become the biggest Kim Scott fan girl after reading it and have listened to every episode of her podcast, also titled *Radical Candor*. When I first read the book, I let myself get distracted by references to Google

and Apple. My mind wandered as I thought about how Scott is not like me; she worked with Larry Page. I cannot relate. Thankfully, I kept reading and refocused.

The book is partitioned into two parts. Part 1 is a definition of Scott's philosophy and includes several frameworks that she finds useful for structuring the discussion. Part 2 includes the tools and techniques she finds essential for success.

In Part 1, the first two chapters define "radical candor." Challenging directly while caring personally is the quick definition (p. 23). The "care personally" part is an aspect that Scott describes in detail and it's worth reading in her words. I re-read these chapters whenever I have a conversation that I want to land and know it could be tricky. The material is written for managers and is applicable to anyone who cares about having honest, if sometimes difficult, conversations.

Radical candor for managers is most impactful when it comes to evaluating and communicating feedback about employee performance. In Chapter 3, "Understand what motivates each person on your team," Scott explains how we can employ radical candor when assessing employees. Included is an explanation of how to have constructive conversations about our assessments.

Now that we know how to communicate and have a solid team motivated to work, Scott spends Chapter 4 explaining how to drive results. In a seven-step iterative model that includes listen, clarify, debate, decide, persuade, execute, and learn, we walk through different ways managers can facilitate collaboration. This model, like the other frameworks Scott defines in Chapters 2 and 3, are referenced in the remainder of the book.

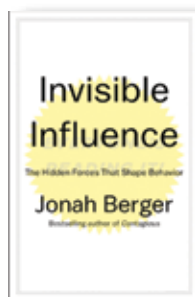
When you look at the titles of Chapters 5–8, you might be underwhelmed: Relationships, Guidance, Team, and Results. These topics are not new, but Scott's approach is effective, and I found these chapters must-read pages.

In the Guidance chapter, Scott talks about gender and how "gender politics" (p. 153) can impact work. With all the emphasis on diversity and inclusion, I appreciate that she spends several pages on the topic.

The direct approach continues in the Results chapter. Scott explains that as a manager, "One of your most important responsibilities to keep everything moving smoothly is to decide who needs to communicate with whom and how frequently" (p. 200). She walks through the ten things related to communication that managers need to do with specific examples of how to apply her philosophy.

Enthusiasm aside, you might not be in the right place to embrace the guidance I found so perfect when I read it. Buy a copy anyway. At some point, when you want a refresher on giving feedback or are strengthening your performance review muscles, you'll pick up *Radical Candor* and it will be exactly what you need.

Invisible Influence: The Hidden Forces That Shape Behavior



Not an obvious book to include in a series on management, I decided to include *Invisible Influence: The Hidden Forces That Shape Behavior* because managers exert influence. We also need to motivate. I wanted to learn from Berger's research to understand how I can leverage the latest findings in my

workplace for optimal results.

In the Introduction, Berger assures me that I have chosen well: "This book is about the simple, subtle, and often surprising ways that others affect our behavior" (p. 14). Chapter 1 is a discussion of how people rely on others when feeling uncertain (p. 21). By looking at psychology studies, Berger guides us through an understanding of how conformity can be a powerful motivator. In technical communication, we think about conformity when we conduct competitive analysis.

I appreciate how Berger doesn't rush the discussion. He considers the role of privacy and how people, at least in some cultures, value independence. By the end of the first chapter, it's evident that influence is more complicated than you might imagine.

Chapters 2 and 3 continue the discussion started in Chapter 1. In "A Horse of a Different Color" (Chapter 2), how people distinguish themselves is the topic. This idea is communicated by a discussion of birth order and siblings (p. 69). In terms of management, as you get to know people on your teams, pay attention to everything that they feel comfortable sharing. Knowing a detail like, oldest of three kids, is helpful. In this example, the employee understands how odd-numbered teams might leave someone out. You never know when this information is something you can use to drive better collaboration.

Things get interesting in Chapter 4 when we think about the familiar and distinct play together to influence people. Berger uses names, like Emily and Apple (p. 153), to explain that we have different reactions to names, even when the words are familiar. For some people, the ordinary is boring and the unique is esoteric. As managers, we must think about how to leverage what's familiar and distinct when managing change. Berger doesn't talk about change management by name in this chapter, but it was on my mind as I thought about how people handle new names, alphabets, and technologies.

Change is a topic called out in chapter 5 as Berger discusses climate change, energy conservation, and how to motivate people to care about these global threats (p. 197). The discussion on motivation is extremely relevant to managers. For example, the idea that "people get more motivated as they get closer to their goal" (p. 214) might explain why a team likes to "come from behind" to achieve a deadline that seems slightly out of reach. For a goal that is extremely unattainable, team morale is likely lower.

Although I find *Invisible Influence* helpful in terms of management, it has the least amount of directly applicable advice. It's a book that I found helping me in unexpected ways and that's because I was paying attention for ways to extrapolate what I was learning. For a more directly applicable book, read *Radical Candor* or *The Manager's Path*.

Leaders Eat Last: Why Some Teams Pull Together and Others Don't



How Great Leaders Inspire Action, by Simon Sinek, is the third most popular TED Talk. You could watch this 18-minute video and have most of the same information shared in *Leaders Eat Last: Why Some Teams Pull Together and Others Don't*. The title refers to a tradition in the military described

in the Forward, written by Retired Lieutenant General (U.S. Marine Corps) George Flynn. Flynn recounts the practice of the most senior leaders in the military eating after all the less senior people. Why? To ensure that the team has plenty as a demonstration of leadership. As Sinek and Flynn share, a leader demonstrates more care about team than self (p. xiii).

This story is a touching, if not overly sentimental, way to kick off the book. For managers, Sinek's goal is to inspire you to lead teams. Management and leadership are two different things. Managers set expectations and find ways to drive accountability. Great managers understand that they are viewed as the de facto leader and that the needs for leadership vary by situation.

Sinek doesn't get specific regarding his guidance regarding leadership. His book includes 27 chapters, divided into 8 parts. For the first 272 pages, it seems that Sinek is making a case for leadership. By the time I read, "It would seem that in the dire scenario, we are our own best hope" (p. 271), I am feeling the lack of leadership. The final 16 pages are the motivational speech of a locker room coach working his team up to go out and have a great second half. Closing the book with the same sentimentality that started it, Sinek writes, "If this book inspired you, please pass it on to someone you want to inspire" (p. 288).

In the intervening chapters, you will find some sentences that throw a few leadership principles: "The only thing our leaders ever need to do is remember whom they serve, and it will be our honor and pleasure to serve them back" (p. 83), and "So goes the leadership, so goes the culture" (p. 168). The lack of depth is disheartening.

Given Sinek is a popular figure and can work with different groups, I anticipated a book full of

Review of Four Books on Management

practical ideas that I could apply at work. I was disappointed. Although I found *Leaders Eat Last* a quick read, there are better books about leadership; for example, *Daring Greatly* by Brene Brown has some excellent guidance about leadership.

Newer editions of *Leaders Eat Last*, including the copy I was provided for this review, include an appendix about leading millennials (p. 289). As someone who has managed and led people of various ages, I found this section trite. When we stereotype the people we're leading, we undermine our ability to lead. If you read the book, skip this section.

There is an extensive section of notes backing up the stories included in *Leaders Eat Last*. Great to know he cares enough to include the notes, but I don't care for this book enough to recommend it.

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About the Author

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Table 1. Books on management compared

	The Manager's Path	Radical Candor	Invisible Influence	Leaders Eat Last
Audience	Beginner to advanced	Intermediate to advanced	Beginner to advanced	Beginner
Major Strengths	<ul style="list-style-type: none"> • Format designed for easy reading and learning • Fully detailed explanations • You're encouraged to practice your new skills • Comfortingly familiar organization of information that steps you through the different management levels • Specific guidance for managers of managers 	<ul style="list-style-type: none"> • Enthusiastically talks about the subject • Format designed for easy reading and learning • You're encouraged to practice your new skills • Online resources, including podcast, that supplement the book's material 	<ul style="list-style-type: none"> • Strongly independent voice that is knowledgeable about the subject • You're encouraged to practice your new skills • Sense of intellectual curiosity 	<ul style="list-style-type: none"> • Enthusiastically talks about the subject • Natural peer-to-peer tone • Quick read
Major Weaknesses	<ul style="list-style-type: none"> • Grayscale printing • Focused on technical industry 	<ul style="list-style-type: none"> • Grayscale printing 	<ul style="list-style-type: none"> • Grayscale printing • Not directly related to management and leadership 	<ul style="list-style-type: none"> • Grayscale printing • Implicit rather than direct guidance regarding management and leadership skills • Contains some irrelevant material • Authorial remarks can become irksome
Comments	Trustworthy, detailed guide for leaders and managers in the tech industry. Good value.	Excellent value. Recommended for anyone who wants to be a more effective communicator.	Although not directly related to management, the information is relevant, and it's a great read.	Skip this book. Watch his TED Talk.
Rating (5-star scale)	****	*****	***	*
Cost (USD)	\$34.99	\$26.99	\$26.99	\$17.00

Jackie Damrau, Editor

Books Reviewed in This Issue

Futura: The Typeface 221

Petra Eisele, Annette Ludwig, and Isabel Naegele, eds.

Understanding Rhetoric: A Graphic Guide to Writing 221

Elizabeth Losh, Jonathan Alexander, Kevin Cannon, and Zander Cannon

Thinking Through Communication: An Introduction to the Study of Human Communication 222

Sarah Trenholm

We Are Data: Algorithms and the Making of Our Digital Selves 223

John Cheney-Lippold

Organizing for Creative People: How to Channel the Chaos of Creativity into Career Success 224

Sheila Chandra

Working Virtually: Transforming the Mobile Workplace 224

Trina Hoefling

Scientific and Medical Communication: A Guide for Effective Practice 225

Scott A. Mogull

Theory of User Engineering 226

Masaaki Kurosu

Presenting Data Effectively: Communicating Your Findings for Maximum Impact 227

Stephanie D. H. Evergreen

The Online Journalism Handbook: Skills to Survive and Thrive in the Digital Age 228

Paul Bradshaw

What Editors Do: The Art, Craft, and Business of Book Editing 228

Peter Ginna, ed.

FrameMaker – Working with Content 229

Matt R. Sullivan

Topic-Driven Environmental Rhetoric 230

Derek G. Ross, ed.

Draft No. 4: On the Writing Process 231

John McPhee

Now You See It and Other Essays on Design 232

Michael Bierut

Never Use Futura 232

Douglas Thomas

Out of the Ruins: The Emergence of Radical Informal Learning Spaces 233

Robert H. Haworth and John M. Elmore, eds.

Communicating Genetics: Visualizations and Representations 234

Han Yu

Graphic Design Discourse: Evolving Theories, Ideologies, and Processes of Visual Communication 235

Henry Hongmin Kim, ed.

This Book is a Planetarium and Other Extraordinary Pop-Up Contraptions 236

Kelli Anderson

Visual Journalism: Infographics from the World's Best Newsrooms and Designers [English Translation] 237

Javier Errea, ed.

How to Write and Present Technical Information 237

Charles Sides

Making Books: A Guide to Creating Handcrafted Books 238

London Centre for Book Arts

A World without “Whom”: The Essential Guide to Language in the BuzzFeed Age 239

Emmy J. Favilla

Take My Money: Accepting Payments on the Web 240

Noel Rappin

Futura: The Typeface

Petra Eisele, Annette Ludwig, and Isabel Naegele, eds. 2017. London, United Kingdom: Laurence King Publishing. [ISBN 978-1-78627-093-1. 520 pages, including index. US\$65.00.]



Futura: The Typeface is a comprehensive history of Futura, a typeface initially proposed by German designer Paul Renner in 1924. The book is a collection of essays provided by a range of well-known and influential writers about design and design history, such as contributors Steven Heller and Erik

Speikermann. The book was originally developed as a catalogue to support an exhibition of the Futura typeface at the Gutenberg Museum of Mainz, Germany (p. 19). The book is so much more than a catalogue; indeed, it provides a cultural history of an era through the lens of one of the world's most ubiquitous and enduring fonts.

It may seem amazing to some that there exists a 500-page book on the history of a typeface. Futura, however, is entrenched in the history of Europe, especially Germany, beginning in the 1920s onward. *Futura* is a journey through time and place, beginning with the design and development of the font by Renner and continuing with its influence in major cities such as Frankfurt, Hannover, Berlin, and Munich. The book then travels outside of Germany to show the typeface's influence in places such as Vienna, Prague, Paris, and New York. Included is also a mention of the typeface's history and current position on the moon.

Futura describes the typeface's extensive use since its inception, such as its prevalent use in urban planning in the city of Frankfurt. However, the font is most commonly relegated to the fields of advertising and book design. While the book includes an impressive vertical history of the typeface, it also includes an astonishing horizontal history of involved events and people, detailing biographies of not only Renner himself but also highlighting those involved with its production and marketing at the Bauer typefoundry, as well as the purveyors of its use.

This horizontal history even discusses the political implications of Futura. Originally dismissed by the Nazis and the Third Reich as part of the degenerative art movements of the New Architecture and New Typography, it was later adopted for official use by the

party. The book explains the initial dismissal as well as the change of heart and how this shift correlated with a change in the political climate of Germany during World War II.

Originally intended to be, and marketed as, the typeface of the future, Futura also drew inspiration from the past. *Futura: The Typeface* is long but not a difficult book to read, and it is accompanied by an abundance of informative images showing the development and use of the typeface in various locations and throughout time, including many historical images of Futura in advertising and design by big name designers such as Paul Rand, Jan Tschichold, Herbert Bayer, and more. Although a book on the history of a font may seem to have a limited audience appeal, mostly to historians, designers, typographers and type enthusiasts, it is, however, a history that cultural anthropologists will be pleased with as well.

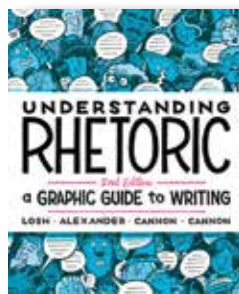
Amanda Horton

Amanda Horton holds an MFA in Design and currently teaches graduate and undergraduate courses at the University of Central Oklahoma in the areas of design technology, design studio, and history of graphic design. Ms. Horton is also the director of the Design History minor at UCO.

Understanding Rhetoric:

A Graphic Guide to Writing

Elizabeth Losh, Jonathan Alexander, Kevin Cannon, and Zander Cannon. 2017. 2nd ed. Boston, MA: Bedford/St. Martin's. [ISBN 978-1-319-04213-4. 340 pages, including index. US\$54.99 (softcover).]



In *Understanding Rhetoric: A Graphic Guide to Writing*, authors Elizabeth Losh and Jonathan Alexander team up with graphic artists Kevin Cannon and Zander Cannon to create a writing guide in the form of a graphic novel. With the constant presence of social media in our lives, visual

literacy is more important now than ever before. Losh and Alexander's concise explanations of fundamental concepts for writing, like how using new media might complicate and enrich the composition and publishing of documents, make this book worth reading for technical communicators living in an increasingly visual world.

This book illustrates compelling examples from history to teach the concepts of writing. For example, to help explain the importance of critical reading, Cannon and Cannon draw out the “ferocious beasts of the forest” that Frederick Douglass uses to describe kidnappers of runaway slaves (p. 75). Because the examples are so entertaining, it is easy to forget how much material the book covers. In “Introduction: Spaces for Writing,” Losh and Alexander set up the book’s main concerns, such as the contexts for writing, the writing process, and visual literacy. “Issue 1: Why Rhetoric?” gives a general overview of rhetoric, along with a general history that sticks to the familiar ground of the ancients and ethos, pathos, and logos. “Issue 2: Strategic Reading” offers strategies for critically reading texts. “Issue 3: Writing Identities” deals with the issues of writing for different audiences and the notions of the performer. “Issue 4: Argument Beyond Pro and Con” delves into strategies for argument that go beyond the basics. “Issue 5: Composing Together” focuses on writing with other people. “Issue 6: Research: More Than Detective Work” discusses how to find good sources and how to cite them. “Issue 7: Rethinking Revision” directs the reader toward structural revision instead of just looking for typos. “Issue 8: Going Public” deals with issues of publication in the world of the Internet.

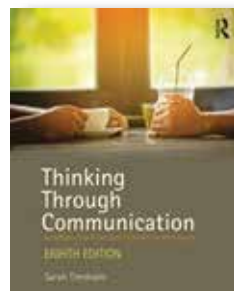
Understanding Rhetoric also uses helpful stories at the end of each chapter to help put the theories into the context of real-world situations. Although the book may feel a little “young” for some technical communicators, the abundance of useful information about writing and helpful examples make the book worth reading. This book is a fun, yet challenging refresher on the fundamentals of writing that also establishes its place in this increasingly visually oriented world.

Dylan Schrader

Dylan Schrader is a graduate student in the MA in Professional Communication program at the University of Alabama in Huntsville, where he also works as a grant researcher in the Office for Proposal Development.

Thinking Through Communication: An Introduction to the Study of Human Communication

Sarah Trenholm. 2018. 8th ed. New York, NY: Routledge. [ISBN 978-1-138-23390-4. 418 pages, including index. USD\$145.99 (softcover).]



Trenholm’s *Thinking Through Communication: An Introduction to the Study of Human Communication* introduces students to communication and its role in society. It is the type of textbook that explains concepts rather than offers how-to-do something. The book begins with

a brief overview of communication and its history (Chapters 1 and 2), and then moves to listening and language (Part II; 3 chapters) and channels and contexts (Part III; 7 chapters). Students will learn about specialized aspects of communication, such as group communication (Chapter 8), organizational communication (9), public communication (10), mass communication (11), and intercultural communication (12), as well as fundamental elements, such as listening, spoken language, nonverbal communication, communicating in a wired world, and interpersonal communication.

Each chapter follows a similar pattern. After an overview followed by the chapter’s text, you’ll find a summary, a list of key terms, and suggested readings. Two appendices follow a similar pattern. Chapters also have lists of what you should know after reading the chapter. Such lists help the reader focus on the key elements.

The emphasis in *Thinking Through Communication* is on communication, its history, and the various types of communication. Advice on preparing and giving oral presentation does not come until Appendix A. It offers material on planning and delivery as well as the speaker’s needed skills and responsibilities. Appendix B covers research methods—five are described in detail.

I was disappointed to find nothing on business and technical communication. The content of first-year writing classes has changed over the years, and you can find elements of business and technical communication principles addressed; for example, résumés, cover letters, interviews, descriptions, etc.

A second disappointment was no discussion of visuals; certainly, support via visuals is a major part of all

communication. Trenholm's approach through rhetoric focuses on rhetorical elements without discussing visuals.

The subtitle states her purpose: *An Introduction to the Study of Human Communication*. Yet "speech communication" appears frequently throughout the text.

This book has some other oddities. First, there are no standard materials for the students, such as chapter questions, assignments, etc. Rather, there is the material contained in the list of things the student should be able to do after reading the chapter. Second, these and other teaching aids are available through an instructor resource website. Finally, although it does present five communication theories (while emphasizing the social construction of reality), students would need additional materials to grasp the range of approaches to understand communication fully.

Because the material is focused on an introduction to communication and not on specialized communication, much of *Thinking Through Communication* will not be appropriate. However, if you want more general knowledge of communication with a side helping of advice on making oral presentations, this book may prove useful.

Tom Warren

Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he served as guest professor at the University of Paderborn, Germany.

We Are Data: Algorithms and the Making of Our Digital Selves

John Cheney-Lippold. 2017. New York, NY: New York University Press. [ISBN 978-1-4798-5759-3. 318 pages, including index. US\$27.95.]



We Are Data: Algorithms and the Making of Our Digital Selves is an in-depth look at how our lives are intrinsically driven by data. Every minute of every day, our digital "identity" is developed with every Google search, every online purchase, and every comment/like/post to a social network. Every click of the mouse (or tap of a finger) feeds various

corporations information about us. Those corporations use that data to identify us, but we have no control or knowledge of that identity. For example, visiting a home improvement store's website may gender you as male, whether you are or not. According to Cheney-Lippold, "The different layers of who we are online, and what who we are means, is decided for us by advertisers, marketers, and governments. And all these categorical identities are functionally unconcerned with what, given your own history and sense of self, makes you *you*" (p. 7). We have no control over how corporations interpret the data we feed to them through our online activity.

Our data are made into "measurable types," such as race, gender, ethnicity, etc., and the soft biopolitics of the algorithms used to determine those measurable types. Cheney-Lippold argues that the corporations (or owners) of data have control and determine the truth of that data. To this point, he writes "What we and knowledge become is not a function of truth. It's a function of the algorithm's output that we are told is 'truth'" (p. 91). These "truths" frame our world and conditions the possibilities available to us. For example, Google will return search results based on Google's interpretation of your data/identity further enforcing that identity.

Our digital identities, however, are not created from our data alone. For "a single piece of data means nothing on its own" and only has meaning when compared to masses of other data (p. 199). Algorithms are built from the data of others in which patterns of likeness determine how ours (and others) digital identities are understood. In conclusion, *We Are Data* shows us just how powerful data can be and how that data affects who we are and who we can be. Cheney-Lippold addresses how data is (and always has been) a part of our lives through the discussion of categorization, control, subjectivity, and privacy.

Sara Buchanan

Sara Buchanan is an STC member that serves as the NEO STC community newsletter editor and is the membership manager for the IDL SIG. She is a technical writer at LCS in Cincinnati, OH for the software, Rent Manager.

Organizing for Creative People: How to Channel the Chaos of Creativity into Career Success

Sheila Chandra. 2017. London, England: Watkins Publishing. [978-1-78678-022-5. 278 pages. US\$16.95.]



How would you like an organizing book that covers how to organize “every” aspect of your life...physical space and headspace? Chandra delivers just that with her book, *Organizing for Creative People: How to Channel the Chaos of Creativity into Career Success*.

She wrote the book for Stik, a homeless street artist. Stik has since gone on to become one of the most famous, collectible street artists in the world. Chandra detailed for Stik the necessary areas in the physical space and headspace that should be organized for his success. As a reader, whether you are part of a business set-up or work for a large company, you, too, can benefit by applying her suggestions, which include:

- Your work area

“Make your workspace be an extension of your body” (p. 31). You should reach for what you need without thinking. I do this by using a vertical file organizer that I keep on my desk. I have a colored file folder for each of my projects and I keep the latest work in the folders.

One of seven items she recommends using in the office is an A5 spiral-bound notebook. Use this to keep a daily running master list of both work and home tasks. As you complete each task, cross it off the list.

At the start of each day, review your plan for the day and make certain you have allocated enough time for each task. Don’t forget to include a mini-break every half hour, which will increase your efficiency.

If you are uncertain when your most productive times of your day are, do a time log. Determine when your most creative times of the day are and schedule your work around those times.

Chandra recommends keeping a clear desk and only having the materials you need for your current task on your desktop. Otherwise, your brain cannot clearly focus on the task at hand.

- Your career

Plan your work life with a yearly work calendar. Select two goals and plan out over the next year how you will achieve them and log milestones for them either monthly or quarterly. That way, you’ll have a better chance of achieving them.

Chandra suggests creating a five-year vision and writing it out, along with the date. This will help you make decisions regarding your career. Also, your subconscious mind wants to know where you are and where you’re going.

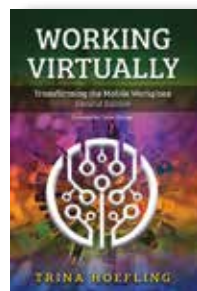
I highly recommend *Organizing for Creative People: How to Channel the Chaos of Creativity into Career Success* if you are looking to organize your workspace and get a better focus on your goals.

Rhonda Lunemann

Rhonda Lunemann is a technical writer with Siemens PLM Software and is a senior member of STC’s Twin Cities Chapter. She assists in arranging programs for the Twin Cities Chapter.

Working Virtually: Transforming the Mobile Workplace

Trina Hoefling. 2017. 2nd ed. Sterling, VA: Stylus Publishing. [978-1-62036-292-1]. 264 pages, including index. US\$29.95 (softcover).



Hoefling laments that business and industry are failing to prepare employees for adapting to a new workplace evolution and that employee engagement (the finesse required to win hearts and minds) continues to erode. In her new edition, she stresses the radical changes inherent in our

technologically driven work place—including increasingly specialized project work that will demand contingent and contract workers who rotate on and off teams with regularity. *Working Virtually: Transforming*

the Mobile Workplace is organized into 19 chapters and six parts, each averaging three chapters, and each introduced with relevant quotes by novelists, athletes, presidents, poets, and philosophers.

Hoeftling writes with figurative language that make her message both relatable and inspiring, particularly when she refers to workers who grapple with “information anorexia or obesity” (p. 189). She borrows the central theme in her book from a Buddhist metaphor, an approach to virtual teaming she calls the “Threefold Path for high-performing teams” (p. 6). Embarking on this path begins after assembling a team with the requisite knowledge, skills, and aptitude. The hard work begins with guiding the team toward negotiating shared values, norms, and structure that establish and maintain trust, which is essential for a virtual team to thrive.

The second half of Hoeftling’s book covers the richest information, including optimizing technology for communication and outlining recommendations for getting the best out of team members. Meeting project timelines and producing deliverables, particularly on a virtual team, requires relationships and bonds that afford a sense of camaraderie. High-performing teams celebrate and champion finding solutions to problems and overcoming obstacles. Hoeftling points to the spiritual nature of collective effort at its best, and devotes several paragraphs to the notion of the “sacred (virtual) space” of a high-performing team (p. 207).

She gives attention to generational differences and their effects on virtual teams, crediting millennials with the aptitudes and proclivities for this new way of working. Hoeftling also touches upon diversity in virtual teams, including the traits of introversion and extroversion, but she doesn’t address gender, racial, ethnic, cultural, political, or ideological differences common among global virtual teams. Themes that recur in each chapter, including communication protocols, trust, and structure, make some of the content seem redundant at times, but the redundancy keeps these nuances of team dynamics central to the book’s message and purpose.

Hoeftling offers supplemental materials on her website, including a free bonus chapter on virtual meetings. Her book chapters include checklists, assessments, and criteria to help with the more practical aspects of virtual teaming. The book, however, could benefit from more examples from Hoeftling’s experiences

and case studies that would have made the material more concrete for readers.

Whether you are part of a co-located, distributed, or virtual team, *Working Virtually* will help you increase productivity, improve employee engagement, and reap both the intrinsic and extrinsic rewards of the working on high-performing virtual teams.

Allen Brown

Allen Brown is managing director of operations for the Marriott Foundation for People with Disabilities. He holds an M.S. in Technical Communication Management from Mercer University.

Scientific and Medical Communication: A Guide for Effective Practice

Scott A. Mogull. 2018. New York, NY: Routledge. [ISBN 978-1-138-84255-7. 360 pages, including index. US\$59.85 (softcover).]



In *Scientific and Medical Communication: A Guide for Effective Practice*, Mogull provides a comprehensive guide designed to “prepare individuals to write and edit scientific manuscripts, conference abstracts, posters, and press releases” as well as to conduct database searches and to use the

appropriate citation format (p. i). This book is the fourth in the Association of Teachers of Technical Writers Book Series in Technical and Professional Communication.

Scientific and medical communication (SMC) has long been viewed as one of the most difficult genres in technical communication because it requires specialized knowledge and often employs quantitative methods. The amount of knowledge necessary to write or edit in these fields can be overwhelming. As a result, graduate students and practitioners tend to be less likely to choose SMC as a concentration. These audiences might change their mind if they are armed with Mogull’s book, which makes this communication type seem simple and easy to understand.

Scientific and Medical Communication is well organized and employs the techniques that it teaches: clear writing and structured communication. Each section focuses on a genre within SMC, such as journal articles, posters, and press releases. This straightforward

organization allows the reader to focus on the genre that is most relevant to them, or to read the entire book from cover to cover for a thorough knowledge of all the possible methods of communication in this field.

Each chapter covers the essential information needed for each section of the paper or presentation, highlighting the necessary “moves” or subsections needed to provide the audience with a thorough understanding of the topic. The chapters are rich with practical examples pulled from the scientific and medical community. The extensive examples contain annotation to illustrate Mogull’s points. Another aspect of the chapters that I found helpful was the sections about common errors and pitfalls. These sections serve as helpful checklists as writers write and revise their work.

Perhaps the most outstanding aspect of *Scientific and Medical Communication* was the use of sources. Many practical guides tend to rest on the author’s authority. While Mogull certainly might have gone that route with his expertise, he chose instead to model what he teaches in the text and support his claims with references from all related fields, such as Tufte for the section on visual communication and Strunk for the section on writing style. Some of these technical communication sources rarely make it in to the discourse of scientists or medical practitioners.

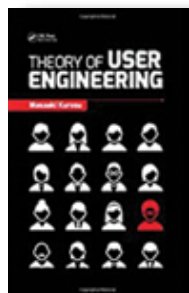
Scientific and Medical Communication is a valuable guide for graduate students in technical communication, as well as the health and scientific fields. However, it is a useful resource for practicing technical communication professionals and academics. Much of the information contained in this text is well known to technical communicators who have been working in this field for years. However, having the information broken down into an easy-to-use guide clarifies some of the practice, as well as provides helpful tips for teaching research techniques and scientific writing.

Nicole St. Germaine-Dilts

Nicole Dilts is an Associate Professor in the Technical and Business Writing Program at Angelo State University, as well as a freelance medical writer. Her research interests include technical communication for a Spanish-speaking audience and technical communication in the health fields.

Theory of User Engineering

Masaaki Kurosu. 2017. Boca Raton, FL: CRC Press. [ISBN 978-1-4822-3902-7. 132 pages, including index. US\$89.95.]



Theory of User Engineering offers a comprehensive overview of Kurosu’s insights and opinions about the field. The book’s description promises new concepts, which it did not deliver.

The book is separated into three main sections with the first two chapters comprising almost half the book (46 pages). They focus on the theory of user engineering. The second part of the book delves into practical applications used for defining artifacts, designing processes, conducting user research, and specifying requirements. The last two chapters review current trends and speculate about the future.

In the first section, Kurosu spends significant time differentiating between terms. He starts the book by defining user engineering as “a set of concepts and methods for improving the quality of life of users” (p. 1). He differentiates that from user experience design, which he says is oriented toward marketing. Several of his sections return to the differences between terms. For example, when describing human-centered design, Kurosu says, “If marketing people and manufacturers are included in ‘human,’ the design approach will be the one that focuses on the product and the service that will bring a big profit to them regardless of whether such artifacts are beneficial to the user” (p. 17). His pointed descriptions may stem back to a 2007 comment from Don Norman (author of *The Design of Everyday Things*) that Kurosu references on page 22. He quotes Norman explaining that “user experience” has become a diluted term that has lost special meaning. *Theory of User Engineering* spends an unfortunate amount of time delineating between terms like user interface/user experience (UI/UX), UX, user-centered design, and human-centered design. I appreciate its gusto for the specific differences in the terms, but the arguments were not strong enough for me to care.

Although the book promised new user engineering concepts, many of the sections do not expand on existing practices and theories. That said, the first two chapters included strong explanations of users as well as relevant summaries about ISO standards and usability concepts. Chapters three to 10 provide

great step-by-step explanations and instructions for conducting fruitful user research. This book was cited very well. It referenced existing usability research that supported its objectives. The graphs and charts were done well. They were simple, basic, black-and-white examples that reinforced the messages or provided good supporting explanations that added clarity.

Theory of User Engineering may be a useful text for a student or someone new to the field. But I did not think that it delivered the new concepts that were promised in the description.

Stephanie Saylor

Stephanie Saylor is an STC member and a senior technical writer with the UX team at Next Century Corporation. She received her master's degree in digital communication from Johns Hopkins University.

Presenting Data Effectively: Communicating Your Findings for Maximum Impact

Stephanie D. H. Evergreen. 2018. 2nd ed. Thousand Oaks, CA: Sage Publications. [ISBN 978-1-5063-5312-8. 226 pages, including index. US\$58.00 (softcover).]



On the job, we don't have the luxury of time to convey information or make an argument. Managers expect instant answers, quick solutions as bulleted lists, and professionally presented data to help us keep pace with today's business in what one designer calls a "high

concept" society, meaning you have "about three seconds to capture attention" (p. 34). Thanks to contemporary applications from Microsoft Office to the Adobe Creative Suite, nearly every worker is expected to produce professional-quality materials. The trick is, How?

Presenting Data Effectively: Communicating Your Findings for Maximum Impact is an indispensable text for anyone who doesn't have a design background but who needs to create quality products, particularly reports, dashboards, and presentations. The second edition is a spectacular upgrade with full color throughout and a sleek page layout that makes absorbing the content a breeze.

Evergreen begins with an argument for design, including recent research on "[v]isual processing theory," which "describes the way the brain perceives and interprets what the eyes see" (p. 18). This information can help readers make a case for design upgrades, especially to those who discount good design as "trying to look slick" (p. 197).

She then categorizes design into four chapters that cover graphics, text, color, and arrangement. Each chapter begins with learning objectives and conceptual information with clear definitions and examples followed by detailed procedures for how to apply the concepts to your projects. Chapters end with a "bottom line" summary, a bullet list of key points, suggestions for extending the concepts, and a reference list for more information.

Presenting Data Effectively also includes two checklists for report layout and data visualization—great for students learning to write reports as well as those in business. The book's companion website, unfortunately, doesn't have much useful content, only a few documents described in the text, but the links at the end of each chapter are treasure troves to online content. Evergreen's approach "is about reworking our data so that it can be understood" (p. 197), and every chapter delivers.

Throughout the text, the procedures focus on Microsoft Office applications because of their ubiquity. Examples include large, full-color screen shots and clear directions for using features like styles in Word. Even more sophisticated users might appreciate some of the tips, like how to reduce file size (p. 64) or use a dark, but thin, border to distinguish lighter elements on the page (p. 144).

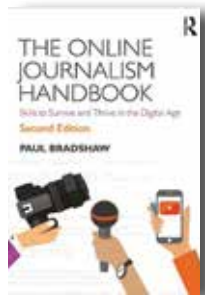
Besides all the graphical elements, the writing is conversational in tone. For example, when discussing the pitfalls of a single-page dashboard meant to help people make decisions from overly simplistic graphics, Evergreen writes, "And this is when the research team freaks out....Yikes, please don't make decisions from this quite yet" (p. 17). She then argues for a dashboard report of a few pages that combine the visuals of a dashboard with slightly more writing to provide context.

Kelly A. Harrison

Kelly A. Harrison, MFA, teaches writing at San José State University and Stanford University. She has written print and online content for various high-tech companies.

The Online Journalism Handbook: Skills to Survive and Thrive in the Digital Age

Paul Bradshaw. 2018. 2nd ed. New York, NY: Routledge. [ISBN 978-1-138-79156-5. 358 pages, including index. US\$55.95 (softcover).]



The Online Journalism Handbook: Skills to Survive and Thrive in the Digital Age walks readers through the various aspects of journalists' online activity, with suggested activities and further readings at the end of each chapter. Each topic covered is summarized, including a brief history, and often includes

detailed instructions on how to do certain things, from spreadsheet formulas for data journalism to using advanced search operators to narrow down online information. Sidebars provide case studies, interviews, and more in-depth information on various platforms, such as Twitter.

As with most books, online services change faster than the publishing cycle. The “Closer Look: Twitter” sidebar, for example, discusses in detail that service’s 140-character limit and ways to work around it. The book is copyrighted in 2018, but in late 2017, Twitter raised its limit to 280 characters. Similarly, some of the apps or brands mentioned may have changed drastically, or no longer exist, by the time you read this.

Another caveat is the handbook’s British origin. Although most examples from *The Guardian* and similar publications are equally applicable in the US, the guest-written chapter on media law is of limited use outside the European Union—or indeed outside the United Kingdom, given that country’s impending departure from the union.

Most other advice, however, is not tied to location. For example, chapters on online audio and video provide detailed advice on equipment, planning, and recording the sound and/or images. Other chapters address the changing nature of journalism with the advent of online capabilities, using the Internet to find sources and story ideas, writing for online consumption or social media, reporting on the go without a TV news van and technical staff, basic coding skills and adding interactive features to online coverage, and incorporating user-generated content in reporting.

Beyond helping journalism students and others interested more in words than technology navigate the

production of digital news, Bradshaw also explains how to verify online information, such as checking images for tampering. As we must sort through ever more news, some of which may be of dubious veracity, this is becoming an important skill even for non-journalists. The basic HTML knowledge that Bradshaw advocates is useful here to determine, for example, whether a webpage resides at its purported URL or redirects elsewhere.

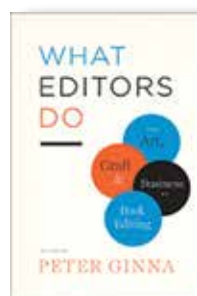
The Online Journalism Handbook provides a good overview of the various types of online news that journalists are asked to produce today. Nobody can create these, but some of the suggested exercises may help in picking one or two areas for in-depth.

Barbara Jungwirth

Barbara Jungwirth owns reliable translations llc (www.reliable-translations.com), where she translates technical documents from German into English. She was previously a technical writer and IT manager and currently serves on the board of STC’s New York Metro chapter. Barbara writes a blog (On Language and Translation) and tweets (@reliabletran).

What Editors Do: The Art, Craft, and Business of Book Editing

Peter Ginna, ed. 2017. Chicago, IL: The University of Chicago Press. [ISBN 978-0-226-29997-6. 310 pages, including index. US\$25.00 (softcover).]



Ginna’s edited collection of essays joins more than 100 other titles in the Chicago Guides to Writing, Editing, and Publishing series, which also includes such excellent aids for editors as Bryan A. Garner’s *The Chicago Guide to Grammar, Usage, and Punctuation* (2016), Scott Norton’s *Developmental Editing* (2009), and Carol Fisher Saller’s *The Subversive Copy Editor* (2016).

What Editors Do: The Art, Craft, and Business of Book Editing includes 26 chapters that expand upon the editorial functions of acquisition, text development, and publication. Some contributors are familiar names in publishing: Norton, Jane Friedman, and Katherine O’Moore-Klopf, for example. Whether a writer be a book author, executive manager, editorial director, publisher, agent, columnist, teacher, freelance editor, in-house editor, or CEO, all are long-established experts.

The essays focus mainly on editing within publishing houses. The general pattern of who does what and on what schedule is much the same whether we're looking at a work of literary fiction or a textbook being submitted to a publisher. Chapters devoted to literary publications may seem only indirectly related to technical communication, but even those pages offer insights of value to technical editors.

It's impossible to avoid some duplication of topic among the essays. Thus, different voices tell us about acquisition editors, developmental editing, the promises and threats posed by Amazon and other realities of the digital age, economics and marketing, self-publishing, and more.

Useful descriptions and recommendations abound. Norton, for example, details how you, the developmental editor, can avoid authors who won't appreciate your suggestions as well as manuscript reviewers whose comments will bog down the development process. Saller briskly describes the varied work of copyeditors, emphasizing "Do no harm." Deb Aaronson writes, "Illustrated books are . . . defined by . . . the capacity of that subject to be expressed visually" (p. 214); we can apply this insight in many ways in our work.

Katie Henderson Adams writes on working as an editorial assistant—a perspective unduly ignored in the literature on editing. O'Moore-Klopf offers a sobering analysis of the minuses as well as the plusses of freelance editing. Arielle Eckstut and David Henry Sterry's "The Self-Publisher as Self-Editor" is excellent on taking criticism. Friedman explains how to craft the optimum metadata for a book and use such tools as Kindle Worlds and Wattpad to build relationships.

The glossary is notable for its compact definitions, strict relevance to editors' needs, and inclusion of such newer terms as *agile publishing*. We find, in addition, a handy selective, partially annotated list of resources and an excellent index.

One indication of Ginna's own editorial expertise is that Norton and Saller here write about developmental editing and copyediting without repeating the content of their own books. Also, he has kept all chapters roughly the same length.

Ginna has taken pains to describe the realities of editing without sentimentalizing the work. He echoes my thoughts about editing as a profession: "Editing is a noble calling" (p. 272). *What Editors Do* belongs on the shelf of any serious editor.

Avon J. Murphy

Avon J. Murphy is a technical editor in western Washington. A retired college professor and government writer, he is an STC Fellow, a contractor, and principal in Murphy Editing and Writing Services, specializing in computer and Web technologies. Avon served as book review editor for *Technical Communication* for 17 years.

FrameMaker – Working with Content

Matt R. Sullivan. 2017. San Juan Capistrano, CA: Tech Comm Tools.

[ISBN 978-0-9967157-0-6. 612 pages, including index. US\$49.99 (softcover).]



FrameMaker – Working with Content is an in-depth reference manual that explores the nooks and crannies of the Adobe FrameMaker 2017 authoring and publishing tool. As a reference manual, this behemoth publication is easy to open and use on a desk, compared to a smaller book that increases the number of pages and is difficult to keep open and control.

Sullivan organizes this book into progressive overview parts (Part I to Part VII) with chapters covering specific topics. These overview parts include Getting Started with FrameMaker (I), Creating and Manipulating Text (II), Controlling Page Layout (III), Building Books (IV), Creating Output (V), Advanced Techniques (VI), and Appendixes (VII). For example, Part II, Creating and Manipulating Text includes chapters on "Word Processing Features" and "Templates." Additionally, each chapter has a mini-table of contents which drills down into chapter details and is helpful to find related content. The advantage to this type of organization is the linear flow that progresses from beginning to more advanced concepts and features that allows the novice and expert to look up tasks or reference material according to expertise. When in doubt, the index is a great resource.

FrameMaker – Working with Content is more than just a reference manual, however, as Sullivan provides sage advice throughout the book regarding best practices, how the FrameMaker features work, what to avoid, workarounds, and helpful notes. An example is the visual folder structure he suggests that clients use for project file storage (pp. 63–64). And, while I am advanced in FrameMaker use, to build a new table of

contents (TOC) has a way of flummoxing me, so I use step-by-step guidance, and appreciate Sullivan's advice on how to avoid formatting work when creating a TOC (p. 287) and other expert tips on customization, reference flows, and TOC flow entries.

Listings of "new features," starting with FrameMaker 9, describe the features by version. Chapters of the book describe each new feature version as well. This is helpful information, especially if you use an older version of the tool, are curious about the version in which the feature appears, or want to look up the current new features.

I enjoy the navigation icons including notes, education, tutorials, and more. My favorite icon, though limited in use, provides access to training videos on the Tech Comm Tools website. Each mini-video demonstrates how to apply or use a FrameMaker feature and is accompanied with a script. Seeing a video cements the learning experience.

Sullivan could improve upon the book's content by adding a legend describing the icons (notes, checkmarks, and exclamation points) as these are not intuitive and tend to blend together. Another improvement suggestion is to use consistent headings and table titles as I found many instances of initial caps and title case used randomly.

In conclusion, *FrameMaker – Working with Content* is not necessarily an easy read, but the organization and content of Sullivan's manual reveals a lifetime of FrameMaker experience and demystifies the hidden layers of a complicated tool.

Maralee Sautter

Maralee Sautter has more than 18 years of technical communication experience. She is an Associate Fellow and past president (twice) of STC Willamette Valley Chapter and past co-manager of the Instructional Design & Learning SIG. She teaches evenings and online at Portland State University in Portland, Oregon, and holds local contracting positions.

Topic-Driven Environmental Rhetoric

Derek G. Ross, ed. 2017. New York, NY: Routledge. [ISBN 978-1-138-21656-3. 278 pages, including index. US\$150.00.]



Issues surrounding the environment affect our daily lives and are highly political as seen by debates on climate change, toxic waste storage, and water conservation. There is no shortage of studies that analyze the environmental rhetoric in these debates and other related disputes; however, in *Topic-Driven*

Environmental Rhetoric, Ross and contributors analyze "topic-driven argumentation" and commonplaces in ongoing discussions concerning the environment—discussions that have political, social, ethical, and scientific implications. This collection's purpose is to help readers take a step back to see the larger picture of the arguments that motivate and drive actions regarding environmental concerns. By analyzing "the way that topics shape the decision-making process and help construct proof" (p. 1), we can see the "power and potential in this rhetorical tool" (p. 3). "Thus, stakeholders' uses of topic-driven arguments also work to establish their vision of which values should be prioritized in society, what counts as evidence, and what actions should or should not be taken" (p. 188). I cannot think of a more timely, crucial topic for readers to explore than the ways that arguments, our own as well as those of others, about the environment are constructed because of the grave consequences and the need for "new avenues for research, new approaches to communication, and new ways to consider our ever-evolving understanding of rhetoric" (p. 18). Ross and the other contributors deliver powerful messages in this vein.

The book is divided into four common topics: framing, place, risk and uncertainty, and sustainability. Framing is concerned with how rhetoric shapes environmental discourse where contributors explore perceptions of proof, of scientists as heroes, and of the term "environmentalist." The section on Place discusses how place influences audiences and their understanding of environmental debates through arguments that use the apocalypse, protection of land and people, and identity as commonplaces. Topic-driven arguments used to communicate risk and get to the "truth" of environmental matters are analyzed in Risk and

Uncertainty through case studies on how accident reports can be used as preventative measures for future environmental disasters rather than as vehicles that try to pinpoint one cause and implicate blame, how apparent decolonial feminism is used as an approach to understand risk communication, and through the manufacture of doubt in hydraulic fracking debates. And scrutiny over the “confused notions” (p. 224) and obscure definitions of the terms “sustainability” and “sustainable development” is the focus of Sustainability.

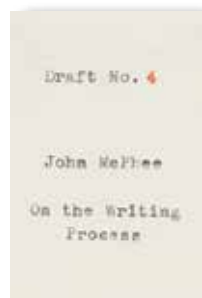
Topic-Driven Environmental Rhetoric is a deliberate and superb collection of argument analysis on environmental matters. I found this anthology to be a page-turner, because I appreciated the inclusion of chapters on high profile environmental matters that are difficult to understand through mainstream media alone, and the thorough research, background, and analysis covered by each contributor that helped me understand the complexities of those issues. The unique, topic-driven argument angle clearly demonstrated how such arguments shape global politics on many issues that have definite effects on our lives now and will affect the future. I highly recommend this book for technical communication scholars, graduate students, and practitioners.

Diane Martinez

Diane Martinez is an assistant professor of professional and technical communication at Western Carolina University. She previously worked as a technical writer in engineering, an online writing instructor, and an online writing center specialist. She has been with STC since 2005.

Draft No. 4: On the Writing Process

John McPhee. 2017. New York, NY: Farrar, Straus and Giroux. [ISBN 978-0-374-14274-2. 192 pages. US\$25.00.]



Creative nonfiction, long form journalism, whatever you call it, McPhee has been its acknowledged master for more than half a century. With more than 100 *New Yorker* articles and 30 books, all still in print, a Pulitzer, and a long career teaching his craft to writing students at Princeton, McPhee is known for

his interesting subjects, unique research methods, and superb craftsmanship.

From time to time, McPhee has shared his insights and experience of the writing life in *The New Yorker*. With *Draft No. 4: On the Writing Process*, nine of those articles are now available in book form.

What sets the *Draft No. 4* apart from other writing advice is that it is truly about the writing process: how McPhee goes about doing what he does. The title is taken from McPhee's essay on the importance of rewriting, finding the better word, and selecting not just what to keep, but what to leave out. McPhee says it is usually not until draft number 4 that he knows he's done; he hits a point where he knows he can't do any better.

Drawing on his own observations of the growth of his own craft and development as a writer, McPhee touches all the bases: choosing a subject, finding an organic structure that will give shape to the piece, managing the copious material that must be gathered for a long work, handling difficult interviewees, working with editors and fact checkers, and much more.

McPhee's favorite method of working is to embed himself in a situation—often for weeks—and watch people work. He has hiked with geologists, crossed the country with long-haul truckers, investigated modern day rustling with agricultural law enforcement, and much more. Having immersed himself in an experience, he discovers what he doesn't know, and this then drives further reading and interviewing, until he has fully explored his subject.

From his own experience both as a writer and a teacher, he stresses that becoming a writer is a process of discovery. Early on, as a budding writer, you need to discover what kind of writer you are; you should try different genres until you find the right fit. You can only find out through trying.

While there is much here for professional writers to ponder, like a good conversation among fellow professionals, the articles are, in fact, written for a general audience. McPhee makes many of his points by telling stories from his life, and quoting sections from his work. He tells a very funny story about interviewing Jackie Gleason, while Gleason's friends were attempting to convince him not to cooperate. (To find out how it worked out, read the book.) He also has great tales of working with various editors and *The New Yorker's* famed fact checkers.

Draft No. 4 is a rich, valuable, and thoroughly enjoyable book.

Patrick Lufkin

Patrick Lufkin is an STC Fellow with experience in computer documentation, newsletter production, and public relations. He reads widely in science, history, and current affairs, as well as on writing and editing. He chairs the Gordon Scholarship for technical communication and co-chairs the Northern California technical communication competition.

Now You See It and Other Essays on Design

Michael Bierut. 2017. New York, NY: Princeton Architectural Press. [ISBN 978-1-61689-624-9. 240 pages, including index. US\$35.00.]



As a creative in the design industry, I understand the insecurities and doubt that plague this industry. In Bierut's new book, he shows us that he understands it too. This curated series of 54 previously published essays sculpts out an autobiographical story of a living design legend. From discouragement

to enthusiasm and everything in between, Bierut shares an inside look at what every designer faces and, in so doing, lets us know we are not alone.

As we move through the beginning of the book, we get a sense of nostalgia, as Bierut describes the days of a more deliberate design process before computers changed the world. He takes us on a tour of his life as a designer, allowing us to stop and look at some of the great moments that influenced him and meet some design giants along the way. These personal accounts let us experience the matte black office accessories at the Vignelli studio as he shares the enormous impact both Massimo and Lella had on him and how it has affected him throughout his career. We move on to see him experiment promiscuously with typography and his humility in dealing with color as he highlights projects that pushed him to grow through struggle, failure, and success. We also get an up-close look at the unflinching political arena via the Hillary logo design, and its very public critique.

With an unassuming tone, Bierut provides us with an entertaining array of topics, that seemingly transcend the topic of design, but as we make our way through an assortment of interviews, observations, book introductions, award ceremony speeches, we see design's reach through each essay.

Any designer would be drawn to the clever approach of the cover design—a modern simplicity with a cheeky undertone sets the pace for the interior, both in content and design. With his life spread across the beautifully laid out pages, we are witness to what he has learned over the years. While we can learn from all his realizations and lessons, the biggest takeaway that Michael Bierut gives us is a sense of comfort. This is a story of optimism and curiosity disguised as a book of design essays—an entertaining and encouraging account for those in any creative industry.

Lanie Gabbard

Delana (Lanie) Gabbard is an associate professor of graphic design with a specialty in typography at the University of Central Oklahoma after several years of working professionally as a graphic designer. She is an award-winning designer and has been published academically and online.

Never Use Futura

Douglas Thomas. 2017. New York, NY: Princeton Architectural Press.
[ISBN 978-1-61689-572-3. 208 pages, including index. US\$24.95 (softcover).]



Never Use Futura is a book that Thomas began as a quest to answer a question that had troubled him since his undergraduate studies in design at Brigham Young University. That question was, Why are design students often told by their professors not to use Futura, a ubiquitous font, despite the evidence

that it has been used widely in designs throughout history, and even today, by both prominent and highly regarded designers? This book is the result of an extensive historical analysis into the use of Futura presented through a collection of essays. The essays fit nicely together to paint a picture of the use of Futura, and the focus sets it apart from other recent texts about Futura, which concentrate more on the typeface's design and revolutionary theories that impacted designer Paul Renner and its development. A renewed interest in Futura in the past year is because of the typeface's 90th anniversary in 2017.

Never Use Futura begins with a brief yet witty introduction by noted author, designer, and educator Ellen Lupton, where she helps set the stage for Thomas's

book. In exploring the prolific nature of the typeface, the book's essays cover a range of topics from the typeface's use in politics, its place in modernism and modern design, and in consumerism, as well as its use on the moon and in space exploration. Thomas also investigates Futura's place in visual language, both historically and currently. One other important thing to note is the book's discussion of Futura's many clones, which gives insight not only into the font's ubiquitous nature but also the prevalence of its knockoffs and clones. It may be shocking for some readers to find that their most beloved fonts were commissioned solely to compete with the success of this remarkable geometric sans serif. Many fonts, even today, owe their heritage to Futura, even if they are not exactly reproductions.

Thomas wrote this text as his MFA thesis while at Maryland Institute College of Art (MICA), and the result is a resounding success. His background, not only in graphic design but in history as well, make this a very well-informed first book. *Never Use Futura* is well written, entertaining, and informative. The book will appeal to anyone with an interest in graphic design, design history, or typography. Also included is a collection of images as examples of Futura's use and prevalence throughout history. A discrepancy, however, is with the images alternating between black and white and either a blue or a red duotone. While the black and white images work well, the duotone images are somewhat distracting from the content. Thomas posits in the book that "Typography is legitimacy" (p. 140). It seems that, if used appropriately, Futura can lend your design legitimacy.

Amanda Horton

Amanda Horton holds an MFA in Design and currently teaches graduate and undergraduate courses at the University of Central Oklahoma in the areas of design technology, design studio, and history of graphic design. Ms. Horton is also the director of the Design History Minor at UCO.

Out of the Ruins: The Emergence of Radical Informal Learning Spaces

Robert H. Haworth and John M. Elmore, eds. 2017. Oakland, CA. PM Press. [ISBN 978-1-62963-239-1. 284 pages, including index. US\$24.95 (softcover).]



Out of the Ruins: The Emergence of Radical Informal Learning Spaces is an edited collection with its guiding concept of Radical Informal Learning offering thirteen chapters, thirteen different approaches, for actively teaching and educating against authoritarian institutions, policies, and practices. Some chapters are idealistic while others are confrontational; several chapters offer subtle but potentially effective strategies to work against the corporatized and surveilled learning environments where so many of us work and teach.

Four sections nicely divide the book and scaffold effectively. First: critiques of education. Elmore's "Miseducation and the Authoritarian Mind" is one of the strongest pieces in the text; it sets the book's tone. This work will probably be reprinted in multiple future collections—thus, this is the key piece to take from this collection. Next section: "Theoretical Frameworks for Educational Praxis." Blending an array of critical pedagogues, anarchists, anti-colonialists, and related revolutionaries, these chapters' authors offer multiple structures and frameworks to move against abusive power.

The third section is likely most relevant to technical communication readings: using official institutional space for radical learning while not being of the space. Resistance from within the system. Sadly, no chapter was entirely persuasive. In their favor, each chapter represents a practical, hands-on approach to making their theory live and real. As such, their suggestions and insights need not be either effective or persuasive; what matters is that they shared tactics and experiences and allow us to learn from their work. That sharing in community is what is most notable. From that view, this section succeeds.

The last section, "Of the Streets and the Coming Educational Communities," offers four chapters about ways to engage, teach, and learn outside of the university. This section is most interesting because it blends direct experience, such as working in Anarchist

Free schools or developing horizontal pedagogy, with visions of the future. In a sense, they are forecasting or planning a bit, but this planning is not based just on theories—it's based on work that they are already engaged in.

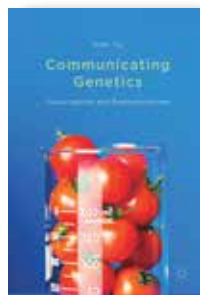
Anarchism has long attended to education's importance in social relations and liberation. Sadly, scholarship around these ideas has been limited, often despite the explicit parallels between anarchism and liberatory educators like Ivan Illich and Paulo Freire or John Dewey's experiential education and learning. *Out of the Ruins* is a welcome addition. It contributes both in terms of scholarly work as well as helping share practical and theoretical pieces for those interested in challenging extremist authoritarianism.

Gregory Zobel

Gregory Zobel is an assistant professor of Educational Technology at Western Oregon University.

Communicating Genetics: Visualizations and Representations

Han Yu. 2017. London, United Kingdom: Palgrave Macmillan. [ISBN 978-1-137-58779-4. 271 pages, including index. US\$ 99.99.]



Genetic science is no longer a futuristic endeavor. It already has produced genetically modified food, animals, and trees; genetic testing is used in disease prediction and prevention; and, genetic sequencing is used to “explore health risks and develop personalized medical and lifestyle protocols” (p. 254) and

provide family history. Genetic science is experienced daily on individual levels, but how much does the average individual really understand about genetics, especially when science, in general, relies on visuals to communicate complex information to publics?

Communicating Genetics: Visualizations and Representations is a thoughtful, important book that goes beyond theoretical discussion about visual representation of genetics. Yu provides readers with critical analysis of over 100 years' worth of visuals related to genetics and “discusses the potential impact on the US publics' uptake of genetics” (p. 2).

The book is appropriately organized according to view: photographic, microscopic, illustrated, code, graph, and structural. Each chapter provides a historical progression of visuals according to each type of view. Even more interesting is Yu's analysis on how these images “embody value judgments about the subject matter they portray and thus influence readers not only cognitively but affectively” (p. 12). Yu approaches her analysis on the basis that genetic visuals are “socio-cultural artifacts” (p. 11), and she is concerned with how accessible these visuals are to the average non-expert reader who is not “elite,” “educated,” or a science “fan” (p. 12). For instance, classical genetics (1900–1940) photographs focused on visible phenomena (such as the different color of mice), but when DNA entered the mainstream discussion about genetics, photographs became more entertaining because they had to relay what was happening at the molecular level. While photographs became more aesthetically pleasing and attention-getting, the visuals did not increase the public's understanding of genetics or engage viewers in any type of scientific dialogue. In some ways, the visuals even reduced thinking about genetics through “genetic essentialism” or “neurogenetic determinism” (p. 56) where photographs reduce humans to their genetic makeup through popular images that depicted certain people as “victims” of genetic diseases.

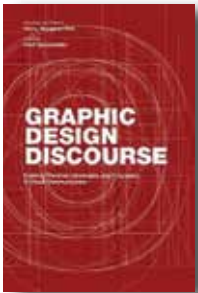
As the world and, most especially, science becomes more complex, writers and publishers rely on visuals to communicate complicated information to non-expert audiences; however, as Yu points out, those visuals are not always effective. One strength of *Communicating Genetics* is that Yu explains why certain visuals fail or succeed in the context in which they are used, and she offers suggestions for how they could be made more useful. She also identifies areas that need more research. The only drawback to this book was its black and white images. There are notes in the book that color images are available online, but I could not find where they reside. Regardless, I highly recommend this book for science and technical communication graduate students (even if they are not studying scientific communication) and scholars and practitioners in these fields as well. I make this recommendation not only because of the important subject matter regarding genetics, but anyone who has a hand in creating visuals can benefit from this excellent study.

Diane Martinez

Diane Martinez is an assistant professor of professional and technical communication at Western Carolina University. She previously worked as a technical writer in engineering, an online writing instructor, and an online writing center specialist. She has been with STC since 2005.

Graphic Design Discourse: Evolving Theories, Ideologies, and Processes of Visual Communication

Henry Hongmin Kim, ed. 2017. Hudson, NY: Princeton Architectural Press. [ISBN 978-1-61689-558-7. 456 pages. USD\$45.00 (softcover).]



Kim and his collaborators have assembled an impressive anthology of texts that span the millennia and form the dialogue that has shaped and informed design over time.

Graphic Design Discourse: Evolving Theories, Ideologies, and Processes of Visual Communication, will undoubtedly find its way into

graduate-level visual communication courses and into the hands of designers who have an interest in theory and design philosophy.

In some ways, this book would be perfectly suited in any graduate rhetoric class. The mantra of “design is everything, and everything is design” echoes the stance that “everything is rhetoric.” As such, it’s no surprise that we find texts commonly studied in rhetoric classes, as Aristotle’s “Rhetoric,” Foucault’s “What is an Author?,” Barthes’ “Elements of Semiology,” Benjamin’s “The Work of Art in the Age of Mechanical Reproduction,” and many more. The difference between this and texts traditionally used in rhetoric and composition courses is the addition of texts that deal not with textual composition and professional writing, but rather texts written by designers and architects, which provides a rich, refreshing perspective.

Besides the traditional rhetorical texts, Kim includes articles and essays written by such influential designers as Paul Rand and Massimo Vignelli. Through the texts, Kim traces the conversations chronologically through nine categories or “processes.” The processes represent the different conversations taking place about modernism, postmodernism, authorship and legitimacy, ethics, and creative process. For Kim, design means

much more than a noun (the visual aesthetic); it’s a verb (encompassing critical thinking, problem solving, development, and communication). Thus, rather than sections or chapters, this collection is arranged by process. Kim provides a short introduction to each process and imparts insight into how he sees the various texts relating to each other to form a continual dialog.

While *Graphic Design Discourse* constitutes an impressive assemblage of articles and essays, it seems to struggle with its own identity. It’s not sure whether it wants to be a design book or an anthology. On one hand, it tries to treat the text in unusual ways (the sideways, right-aligned text on page 21; the ridiculously footnoted text on pages 13, 43, and 323; sudden columns on 119; text in different directions on 155), but these treatments aren’t consistent enough to create a sense of cohesion, nor are they frequent enough to give the reader that visual eye candy that seems to be the hallmark of design books. Anthologies, on the other hand, are meant to be read, and superfluously designed text is distracting and impairs readability.

Thankfully, these design choices were only applied to Kim’s own interjections. The texts selected for inclusion are left intact and were not subject to similar distracting and unnecessary design. The texts that were so carefully assembled for *Graphic Design Discourse*, rather than the design of the volume, serve as an important body of knowledge for graphic designers, rhetoricians, and philosophers.

Michael Opsteegh

Michael Opsteegh is an STC Senior Member and a technical writer in the software and financial services industries since 2004. He is a lecturer in the technical communication program at Cal State Long Beach. Michael holds a master’s degree in English and is a Certified Technical Professional Communicator (CPTC).

This Book is a Planetarium and Other Extraordinary Pop-Up Contraptions

Kelli Anderson. 2017. San Francisco, CA: Chronicle Books LLC. [ISBN 978-1-4521-3621-9. 10 pages. USD\$40.00.]



When selecting a book by title alone, you may think that *This Book is a Planetarium and Other Extraordinary Pop-Up Contraptions* may be a generalization about the book's contents. Perhaps the book is about planetariums, projecting stars, or constellations. However,

in this case, the book folds out to become a rudimentary planetarium, powered by the light of a cell phone or other small flashlight.

Not only is this book a planetarium, it is also a musical instrument, decoder ring, perpetual calendar, speaker, and spiralgraph. Each is made almost exclusively from folded paper or paper board, and all the advertised items are functional. As you unfold each page, easy to follow instructions appear, along with a brief explanation of the paper device.

First is a musical instrument: a simple guitar with nylon strings, and a paperboard pick held in place by a sturdy paper strip. Although you cannot play actual music on the makeshift guitar, you can pluck the strings and here the different intonations created by the length and tautness of the strings. Next up is the basis of all simple cryptography: the decoder ring. The ring consists of a spinning disk with letters and numbers on it, along with a description on how to use it. Sharing the page spread is a perpetual calendar. A perpetual calendar uses similar mechanics as the decoder ring and consists of an inset disk that you spin to show the relationship between years and days of the week. For example, in 2012, January and October have a Monday that is the first day of the month. On the same setting, you'll see that 2034 has May starting with a Monday as the first of the month. Other month/day combinations appear on the same display as well. When you get to a new month, you turn the dial, and the calendar recalibrates itself according to the year/month selection you make.

A titular planetarium appears in the center of the book. This is one of the book's more complicated paper-folding creations. On the tips of the front and back inside covers of the book are elastic bands. You can use

them to loop over the interior pages of the planetarium, enabling you to keep the book open and flat. Once the pages are secured, you are invited to place a small light, such as from a cell phone, under the planetarium dome. When taken into a darkened room, your ceiling will be flooded with stars along with lines connecting the constellations. These constellations are named, but not described.

The last pages contain a folding cone and stand for a cell phone. The cone will act as a sound channeling device for any noise or music created on the mobile device. *This Book is a Planetarium* concludes with a spiralgraph. This is a spot to place a piece of paper and hold it down with a cutout of a giant gear. On the opposite page there are 4 smaller gears stored behind thick paper straps. Each gear has many off-center holes in them. When placed in the cogs of the giant gear, over the pinned paper, you can trace a pen or pencil in any of the holes while rolling the small gear around the teeth of the giant gear. The result of this rolling is an enticing pattern of predictably wavy lines. If you keep a firm grip on the giant gear, the smaller gears will smoothly roll around creating mathematical artwork.

With *This Book is a Planetarium*, Anderson created a visually engaging, informative book that families will enjoy. My preschooler regularly requests that we set up the planetarium in his room at night, and if he can play the guitar in the book. If you are looking for instructions on how to build these items, then this is not the right book for you. Conversely, if you seek clever demonstrations of paper folding to build intriguing devices to share with your family, then *This Book is a Planetarium* can help you reach the stars.

Timothy Esposito

Timothy Esposito is an STC Associate Fellow with over 15 years of technical communication experience. He is currently president of the STC Philadelphia Metro Chapter and chair of the Distinguished Community Service Award Committee. Before becoming president, Timothy was chapter vice president, treasurer, webmaster, and scholarship manager.

Visual Journalism: Infographics from the World's Best Newsrooms and Designers [English Translation]

Javier Errea, ed. 2017. Berlin, Germany: Gestalten. [ISBN 978-3-89955-919-4. 288 pages, including index. USD\$69.00.]



Every day, we're bombarded with massive amounts of information from fluctuations in stock prices, census data, population health, food and energy costs, crime rates, and more. As content consumers, we're expected to make sense of all this big data. Both the amount of information and advancements in

the technologies used to visualize data have led to a proliferation of infographics in newspapers, magazines, the Web, video, and social media. These factors have also led to more creative and complex infographics. *Visual Journalism: Infographics from the World's Best Newsrooms and Designers* chronicles this "golden age" of information graphics, or infographics.

Although Errea didn't set out to create a beautiful book, that's exactly what he did. The infographics presented throughout *Visual Journalism* are arresting, absorbing masterpieces of data visualization. This volume, however, represents more than mere "chart porn," Errea has painstakingly profiled such current masters and rising stars of infographics as Amanda Cox, Mónica Serrano, Archie Tse, and 15 others. The profiles describe not only the artists' careers and educations, but also their passions and processes. These profiles present a study of how infographic designers think about the world and shape large data sets. The book also features analysis and commentary from eight global infographic designers, which add important context about how infographics educate and shape the world.

Visual Journalism was originally printed in Germany and, as such, takes a distinctly world view of infographics. The designers featured and the works illustrated are representative of nearly every continent. And while the profiles, commentaries, and captions are translated into English, the infographics themselves are presented in their native languages. It's interesting to observe how much information is communicated through the visualizations without reading the text. It's also interesting to observe how often visualizations can be confounding without it. *Visual Journalism* is surprisingly current, and features infographics from

1979 all the way through 2017. The casual reader might be surprised to find current events present in a book that must have taken considerable time to produce.

Visual Journalism is simply gorgeous. Its generous size (10.9×13.2") is suitable for reproducing works that originally appeared on large tabloid sheets. The infographics are brilliantly printed in full color, and four of the larger infographics fold out to accommodate larger infographics. It's possible to flip to any page and instantly lose yourself for an hour, tracing the charts and graphs through their various windings, connecting data points, and making meaning. Such is the power of infographics.

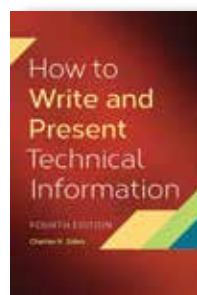
The book's large format has some drawbacks. It becomes unwieldy to turn the book to read text printed sideways, and the book's own captions are often printed sideways. The book also lacks a table of contents and a subject index (although, it does include an index of designers and commentators). The lack of these navigational features might prove frustrating to researchers more than casual readers.

Michael Opsteegh

Michael Opsteegh is an STC Senior Member and a technical writer in the software and financial services industries since 2004. He is a lecturer in the technical communication program at Cal State Long Beach. Michael holds a master's degree in English and is a Certified Technical Professional Communicator (CPTC).

How to Write and Present Technical Information

Charles Sides. 2017. 4th ed. Greenwood. 244 pages, including index. [ISBN 978-1-4408-5505-4. USD\$61.00.]



How does Charles Sides update his *How to Write and Present Technical Information* book to bring it to its fourth edition? He starts with the idea that technology is now a dominant force in professional communications and the audience should learn to maximize the impact of technology to create effective

information products.

With this update, this book becomes a valuable textbook or reference for today's audiences, covering newer tools such as social media, Skype, and Webinars while still covering the basics and older tools still in use

today, including topics such as the Flesch Readability Scale and Gunning Fog Index (pp. 189–191). Sides covers both text and spoken presentations and how effective communication can have a positive impact on project management in professional environments.

With Sides working as a professor of communication and director of internships for the Department of Communications Media at Fitchburg State University, he has a good idea of what should go into *How to Write and Present Technical Information* to continue to make it an asset for today. He is also a consultant, editor of the Journal of Technical Writing and Communication, and editor of the Baywood Series in Technical Communication, giving him a valuable perspective on what information is of value to the audience.

Scientists and engineers could benefit from *How to Write and Present Technical Information* as it covers the basics of gathering information, keeping the focus on what the audience needs, editing, and making presentations. Information on how to write public relations, marketing, and advertising materials also appears and is of value to the audience if they need to prepare such information. Communicators and students could also benefit from the overview.

Jeanette Evans

Jeanette Evans is an STC Associate Fellow and active in the NEO community, currently co-authoring an Intercom column on emerging technologies in education. She holds an MS in technical communication management from Mercer University. Jeanette currently freelances, tapping into her eclectic background and interests.

Making Books: A Guide to Creating Handcrafted Books

London Centre for Book Arts. 2017. New York, NY: Princeton Architectural Press. [ISBN 978-1-61689-631-7. 192 pages. USD\$35.00.]



When I first looked at *Making Books: A Guide to Creating Handcrafted Books*, I wondered if technical communicators would even be interested in it. Hundreds of books are available that speak directly or indirectly to the main work they do: develop content. Some books that discuss design

mention designing books. *Making Books* tells about binding the book once the content is set, the designers have finished, and it is printed.

For the typical technical communicator, however, knowing how books are bound could enhance their contributions to the whole process.

But the value of this book will appeal to other potential readers that could include someone looking for a hobby. Or, persons looking for an evening activity that might turn into a second or even primary job. Or, someone who owns some old books that need to be rebound. And many others.

The authors founded the London Centre for Book Arts. Their mission, both at the Centre and in their book, is to provide instruction for bookbinding. They assume that their readers know nothing about the craft and want to do it at home.

The “Introduction” explains the history and goals of the Centre, stressing that members can come and use their equipment, but that is not the full story. They want their readers to be able to do bookbinding at home. After a brief overview of binderies, they present the list of tools and equipment, materials needed, and techniques involved for all projects.

A large section describes various kinds of bookbinding including not just traditional bookbinding, but also pamphlets, stab bindings, slim case bindings, and more. Each section contains photographs showing what the section describes. These photographs are especially useful not only for the tools and equipment used, but also the step-by-step instructions for the different binding types.

Each project begins with a materials list and required tools. Illustrations show how to develop the finished product with a completed project also illustrated. Drawings of the stitching patterns show how to do that part.

In stab bindings, for example, the stitching is seen on the outside of the project rather than being hidden behind the cover. It is a technique developed by the Japanese many centuries ago and adds a decorative feature to the project.

While technical communicators who follow a classical approach to instructions will find fault in the authors’ approach, such differences do not distract. Paragraphs, for example, that show specific steps may contain more than one activity. Also, the photographs of the steps do not provide call-outs found in the

classical approach. Neither difference, however, interferes with understanding what to do.

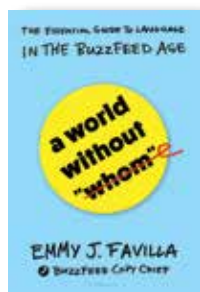
Making Books: A Guide to Creating Handcrafted Books is well worth the cost for those readers I mentioned above, and at a minimum show how to bind various documents when the project calls for a book.

Tom Warren

Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he served as guest professor at the University of Paderborn, Germany.

A World without “Whom”: The Essential Guide to Language in the BuzzFeed Age

Emmy J. Favilla. 2017. New York, NY: Bloomsbury. [ISBN 978-1-63268-757-5. 392 pages, including index. US\$26.00.]



To start with, I had not heard of BuzzFeed before I read *A World without “Whom”: The Essential Guide to Language in the BuzzFeed Age*, so it says something about the reviewer. But fortunately, Favilla has me in mind when she writes, “You might not want to make the effort to learn more, or to care, about how people

decades younger than you are conversing” (p. 311). Actually, I do care, so that is why I read and reviewed this book.

Favilla, the Copy Chief at BuzzFeed, has a similar background to many technical writers, though she is not aware of us as an audience. Her life as a copyeditor is an “accidental livelihood”; “I am a person who happened to stumble into a career in copyediting by way of my journalism degree” (p. 2). How many of us can say that!

There are so many good things to write about *A World without “Whom”*, it’s hard to know where to start. There are four chapters I’d like to mention. First, Chapter 4: “How Not to Be a Jerk,” talks about how language influences reality, so we better be careful how we use it. “Language has the impressive ability to craft social construct, and if the result is negative, then we

learn and we listen and we phrase things better the next time” (p. 60). So political correctness is not something she dismisses offhand.

Chapter 6, “How Social Media Has Changed the Game” is probably my favorite chapter, because I learned so much about how people communicate in social media. Favilla has a great sense of humor. “Doge-speak,” where photos of a Shiba Inu dog were given Comic Sans captions, is a great case in point.

Chapter 8, “How the Internet has Changed Punctuation Forever,” is the chapter I disagreed with the most. For example, this sentence made my blood boil: “Curly quotes are cool and all, but not cool enough to keep you up late worrying when there are things like, I don’t know, CLIMATE CHANGE, to think about instead” (p. 249). Since when can a person not care about punctuation and climate change at the same time? Two heroes of mine are Robin Williams (the typographer) and Bill McKibben (the climate change activist), and I think both are extremely important.

Chapter 11, “Email, More Like Evilmail, Amirite?,” is so good that I’m thinking about using the whole chapter in the Professional Writing class that I teach. She gives the subject a new slant from her youthful perspective.

I suppose the two things I’m most disappointed with in *A World without “Whom”* are her swearing, which is very unprofessional, and the fact that many of her radical positions are negated by the very book which she has published. It contains no comma splices, even though she says, “But it’s a new millennium and the comma splice is back—and it’s done taking shit from anyone” (p. 251). Enough said.

Charles Crawley

Charles Crawley is a long-time member of STC, who writes professionally for Rockwell Collins and teaches academically for Mount Mercy University, both in Cedar Rapids, Iowa. He will correct a comma splice and bad quotation marks, and believes in climate change.

Take My Money: Accepting Payments on the Web

Noel Rappin. 2017. Raleigh, NC: The Pragmatic Programmers. [ISBN 978-1-68050-199-5. 325 pages, including index. \$38.00 (softcover).]



Today, businesses need to take orders and payments online if they want to survive or at least thrive. Rappin warns us that building the shopping cart can be a tortuous, frustrating venture. It includes operations like managing inventory, refunds, taking payments,

validating data, security (including fraud), and reporting. Not least are the legal issues regarding online financial transactions. And things can go wrong at almost any stage of the game.

Taking payments is only a part of the entire operation. Behind that lies a complex administrative structure, plus the crucial flexibility needed to bend the rules; things always come up, that don't fit into neat compartments.

Take My Money: Accepting Payments on the Web is written for techies, though Rappin keeps the general reader in mind. Apart from technical terms, he presupposes a knowledge of software and other Web applications that may limit the general reader's access.

Rappin's book uses a very accessible example for developing its Web application: the need of a small-town theater company to have an online portal for selling tickets and receiving payment. Interestingly, the portrait of this seemingly straightforward operation offers a glimpse into the transactions of a larger, more complex organization.

Let's take a closer look at the example—the matter of tickets: Tickets are a finite resource, thus the need for inventory management. Also, the need to notify the user, track the ticket, and update totals: a workflow issue. Then, keeping an eye on sales, which involves reporting. Next, legal issues, as we've seen. Plus, bad things can happen with the code: the need to identify and modify bad data. Some bad things may be malicious as well: a security problem. Some bad things deliberately override the normal computer logic resulting in the need for administration.

Take My Money provides an interactive discussion forum and other aids for programmers and Web developers. Each step along the way can have a

multitude of options; an idea that is well fleshed out with the ticket example for the theater company. First, the price that is modelled as an integer number of cents. In addition, the ticket's status: sold or unsold. Perhaps an access level: some tickets may be reserved for certain users or the reservation of a specific seat to a performance given at a specific date and time. Each set may have its further subsets like the difference between general admission tickets versus specific reserved seating. And remember, we're looking at a small-town theater company; not a multinational.

As Rappin says: "Handling payment logic is complicated, but it is also concrete and quite literally rewarding" (p. xvi). While *Take My Money* speaks mainly to Web designers, it provides a tremendous insight into the process of Web payments for others who are not specialists but still have a need to gain an understanding of the process.

Steven Darian

Steven Darian is an STC Fellow and retired from Rutgers University, where he taught business and technical writing. His previous book was *Technique in Nonfiction: The Tools of the Trade* (2017). Steven is branching out with his latest book, *The Wanderer: Travels and Adventures Beyond the Pale* (2018).



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Lyn Gattis, Editor

The following articles on technical communication have appeared recently in other journals. The abstracts are prepared by volunteer journal monitors. If you would like to contribute, contact Lyn Gattis at LynGattis@MissouriState.edu.

"Recent & Relevant" does not supply copies of cited articles. However, most publishers supply reprints, tear sheets, or copies at nominal cost. Lists of publishers' addresses, covering nearly all the articles we have cited, appear in *Ulrich's international periodicals directory*.

Communication

Communication and teleworking: A study of communication channel satisfaction, personality, and job satisfaction for teleworking employees

Smith, S., Patmos, A., & Pitts, M. (2018). *International Journal of Business Communication*, 55(1), 44–68. doi: 10.1177/2329488415589101

"This study examines teleworkers' job satisfaction related to the use of and satisfaction with a variety of communication channels and workers' personality type. U. S. teleworkers (N = 384) completed an online survey and self-reported on dimensions of communication channel satisfaction, job satisfaction, and personality. Results indicated that extraversion, openness, agreeableness, and conscientiousness are positively correlated with job satisfaction. Additionally, significant moderating effects were found for the relationship between openness and phone and video communication, and agreeableness and phone communication on job satisfaction. Findings from this study yield important practical implications for organizations including suggestions for optimizing communication satisfaction for employees of differing personality types and recommendations to help organizations effectively hire and retain teleworkers."

Katherine Wertz

The tone dilemma: Comparing the effects of flattery and verbal aggression in a political speech

Cavazza, N. (2017). *Journal of Language and Social Psychology*, 36(5), 585–598. doi: 10.1177/0261927X17698186

"In the realm of political communication, the effects of personal verbal attacks on political opponents have long been studied. However, less well understood are the effects of flattery on such opponents. [The author] present[s] an experiment showing that praising a political opponent elicits an audience's positive emotions, which in turn positively influences source trustworthiness, and ultimately increases the likelihood of voting for that source. In contrast, attacking an opponent elicits aversion, which in turn negatively influences source trustworthiness, thus reducing the likelihood of voting for the source."

Yvonne Wade Sanchez

Voices in conflict? The crisis communication of meta-organizations

Frandsen, F., & Johansen, W. (2018). *Management Communication Quarterly*, 32(1), 90–120. doi: 10.1177/0893318917705734

This research looked at cooperating and competing interests among meta-organizations during a crisis. The crisis was communicated not only by the organization directly involved but also communicated by various trade organizations to which the original organization belonged (meta-organizations). "Little research has explored the interorganizational dimension of crises, crisis management, and crisis communication, *in casu*, the role of trade associations. Based on Rhetorical Arena Theory, this article examines two research questions:

(1) How do trade associations prepare for crises that may arise for their member organizations and/or for themselves? and (2) How do trade associations communicate during a crisis involving one or more of their members and/or themselves? Do they speak with ‘one voice,’ or do they pursue different strategies? The empirical basis for this research is a case study of how four Danish trade associations . . . intervened communicatively when one of their members, Bestseller, faced a double crisis in 2011.” Inherent in all of this were many ethical considerations for all the writers involved.

Diana Fox Bentele

Design

Visual invention and the composition of scientific research graphics: A topological approach

Walsh, L. (2018). *Written Communication*, 35(1), 3–31. doi: 10.1177/0741088317735837

“This report details the second phase of an ongoing research project investigating the visual invention and composition processes of scientific researchers. In this phase, four academic researchers completed think-aloud protocols as they composed graphics for research presentations; they also answered follow-up questions about their visual education, pedagogy, genres of practice, and interactions with publics. Results are presented first as narratives and then as topologies—visualizations of the communal beliefs, values, and norms (topoi) that connect the individual narratives to wider community practices. Results point toward an ecological model of visual invention and composition strategies in the crafting of research graphics. They also suggest that these strategies may be underrepresented in scientists’ education. More explicit attention to them may help improve STEM visual literacy for nonexperts.”

Yvonne Wade Sanchez

Wearable technologies and communication design [guest editors’ introduction; special issue]

Jones, J., & Gouge, C. C. (eds.). (2017). *Communication Design Quarterly*, 5(4), 4–14. [doi: none]

“Using the data generated by both consumer- and medically-oriented wearable devices to assess and improve fitness, wellbeing, and specific health outcomes demands attention to the user experiences of such devices as well as to the kinds of claims being made about their promise. . . . This special issue participates in such work by presenting case studies situated at the intersections of wearables, communication design, and rhetorical analysis that explore the health, justice, and wellness-oriented promises of specific wearables. In this introduction, [the editors] briefly survey the research on wearables in the fields of rhetoric and technical communication, preview the essays in the collection, and propose some areas for future work that might be of interest to technical communication, communication design, and rhetoric scholars.”

Lyn Gattis

Education

Confronting negative narratives: The challenges of teaching professional social media use

West, S. (2017). *Business and Professional Communication Quarterly*, 80(4), 409–425. doi: 10.1177/2329490617723118

Many [instructors] struggle with teaching . . . students the life lessons and pitfalls of personal social media while also teaching them effective use of social media as a professional. “This article continues discussions of students’ reticence [to engage social media in the classroom] due largely to negative cultural narratives that label social media as unprofessional, or that link social media only with reputation management. Using student interviews and writing from a social media writing course, [the author] discuss[es] challenges posed by students’ adherence to these narratives and

conclude[s] with five suggestions for implementing social media successfully.”

Diana Fox Bentele

Health humanities baccalaureate programs and the rhetoric of health and medicine

Gouge, C. C. (2018). *Technical Communication Quarterly*, 27(1), 21–32. doi: 10.1080/10572252.2017.1402566

“This article argues that technical and professional communication (TPC) programs and specialists need to contribute more to health humanities scholarship and program curricula. The article reviews the writing courses offered by baccalaureate health humanities programs and ‘to support further TPC engagement in these programs’ offers core generalizations and strategies for managing their approval process.”

Rhonda Stanton

Moving from student to professional: Industry mentors and academic internship coordinators supporting intern learning in the workplace

Kramer-Simpson, E. (2018). *Journal of Technical Writing and Communication*, 48(1), 81–103. doi: 10.1177/0047281616646753

“This article offers empirical data to explore ways that both industry mentors and academic internship coordinators support student interns in ways that optimize the workplace experience. Rich description of qualitative data from case studies and interviews shows that to optimize the internship, both the industry mentor and the academic internship coordinator ensure that the experience offers professional-level experiences while allowing students to make mistakes in the course of the learning experience. Finally, academic internship coordinators find it most effective to spend time selecting strong industry mentors, and then cultivating these relationships across years of internship interactions.”

Anita Ford

Ethics

Medical narratives in rhetorical context: Ethically researching anti-vaccinationists

Lerner, A. S. (2018). *Technical Communication Quarterly*, 27(1), 80–92. doi: 10.1080/10572252.2018.1399750

“This article argues that anti-vaccinationists pose an ethical challenge to researchers. On the one hand, research practices in narrative medicine push us to empower illness narratives. On the other hand, empowering some illness narratives may be misleading if the narrator is misinformed. By combining approaches to ethics found in medical humanities, medical ethics, and rhetoric of health and medicine, we can more accurately and ethically unravel how these skeptics are persuaded to hold their attitudes.”

Rhonda Stanton

Health communication

Health ecologies in addiction treatment: Rhetoric of health and medicine and conceptualizing care

Walkup, K. L., & Cannon, P. (2018). *Technical Communication Quarterly*, 27(1), 108–120. doi: 10.1080/10572252.2018.1401352

“This study explored the introduction of an ecological care model into a women’s alcohol-and-other-drug treatment facility. When patients learned that their health resembled a network of factors including demographics, health experiences, and their own health literacy, they approached addiction as a problem that required complex solutions. The authors present a methodology derived from rhetoric of health and medicine scholarship and the medical humanities that may help patients improve mental health literacy and treatment outcomes.”

Rhonda Stanton

Mapping the terrain: Examining the conditions for alignment between the rhetoric of health and medicine and the medical humanities

Hannah, M. A., & Arduser, L. (2018). *Technical Communication Quarterly*, 27(1), 33–49. doi: 10.1080/10572252.2017.1402561

“This article offers an empirical study of literature in the rhetoric of health and medicine (RHM) and the medical humanities (MH). Article traces the topics, funding mechanisms, research methods, theoretical frameworks, evidence types, audience, discourse arrangement patterns, and action orientation that constitute the scholarship in the sample to offer a landscape of the current state of RHM and the MH. Findings can be leveraged to assess the potential for alignment between these fields for future research.”

Rhonda Stanton

Medical humanities and/or the rhetoric of health and medicine [special issue]

Angeli, E. L., & Johnson-Sheehan, R. (eds.). (2018). *Technical Communication Quarterly*, 27(1), 1–6. doi: 10.1080/10572252.2018.1399746

“[T]he medical humanities, RHM [rhetoric of health and medicine], and technical communication extend into the ‘everydayness’ of exchanges in healthcare, exchanges that the authors in this special issue explore. . . . In these exchanges, and in this special issue, we can see how RHM, the medical humanities, and technical communication can work together to contribute to the healthcare field, especially by preparing preprofessional health and medical students, impacting healthcare providers’ practices, and supporting patients and their caregivers as they navigate the healthcare system. . . . The articles in this special issue explore the intersections and tensions between the emerging fields of the medical humanities and RHM, especially as they relate to technical communication. The medical humanities tend to approach the field from traditional pathways familiar to the humanities and liberal arts, such as history, philosophy, ethics, literary studies, sociology, and political science. . . . Somewhat differently, RHM tends to be more application oriented, researching

current communication practices and identifying best practices among healthcare providers. . . . [T]he aim of this special issue is to explore the intersections and tensions between the medical humanities and RHM. By building stronger bridges between these two related disciplines, [the editors] hope also to broaden technical communication’s opportunities to do funded research, promote healing, and develop curriculum that is beneficial to the healthcare workplace.”

Rhonda Stanton

Results from the 2016 freelance medical communicator tools of the trade survey

Nicosia, M. (2017). *AMWA Journal* 32(3), 105–112. [doi: none]

A 34-question survey was distributed to 381 medical writers for the purpose of collecting and analyzing data related to their use of technical tools. “Most participants worked on laptops (63%) powered by Microsoft Windows (70%) and backed up with an external hard-drive (66%) and/or an online/cloud service (52%). The most commonly used online/cloud-based backup services were Dropbox (29%), Carbonite (19%), and Google Drive (15%). Among the survey responders who had a business website (52%), 54% had designed it themselves. For accounting/bookkeeping, 42% used spreadsheets and 20% did not use any software/app. For time tracking, 32% used spreadsheets and 35% did not use any software or app. Also, 42% did not use any citation/reference management software. When asked about the one essential tool they would recommend to colleagues, the most popular responses were Microsoft Word, Adobe Acrobat, and PerfectIt for the software app category, and multiple and/or large monitors, a laptop, and an external back-up hard drive for the device category.”

Magdalena Berry

Teaching writing for the health professions: Disciplinary intersections and pedagogical practice

Kenzie, D., & McCall, M. (2018). *Technical Communication Quarterly*, 27(1), 64–79. doi: 10.1080/10572252.2017.1402573

“This article outlines an approach to teaching a Writing for the Health Professions course and situates this approach within the aims of and tensions between the medical humanities, the rhetoric of health and medicine, and disability studies. This analysis provides a pragmatic walkthrough of how assignments in such courses can be linked to programmatic outcomes (with SOAP [Subjective, Objective, Assessment, Plan] note and patient education assignments as extended examples) as well as an interdisciplinary framework for future empirical studies.”

Rhonda Stanton

Information management

Intelligent information, iiRDS, and DITA—Part 1: Introduction to intelligent information

Parson, U. (2018). *Best Practices*, 20(1), 8–11. [Center for Information-Development Management] [doi: none]

This article—Part 1 of a series—explores questions to ask after technical documentation has been created with “structured content that is delivered in a machine-readable format like HTML and enriched with metadata for semantic queries and automated processing. . . . [H]ow can the documentation that comes with devices of different manufacturers be connected? Suppose, manufacturer A provides a ‘maintenance manual’ while manufacturer B provides a ‘repair manual.’ The person who repairs is either the service technician or the mechanic. How does an application that is supposed to retrieve content for the service technician know where to look and what information to display?” The author calls for standardized metadata, delivered with the documentation, to make the documentation content

“exchangeable and usable in multiple contexts.”

The article then introduces “iiRDS, the intelligent information Request and Delivery Standard, initiated by the German association for technical communication, tekomp. . . . iiRDS provides a technical format for delivering and integrating intelligent information. It includes an ontology describing the domain of technical communication and a package format for delivery.”

Lyn Gattis

A publisher’s view of DITA

Hamilton, R. (2017). *Best Practices*, 19(4), 77, 80–81. [Center for Information-Development Management] [doi: none]

“The needs of a publisher and a tech pub group vary in significant ways, and shape the solutions each select. A tech pub group has a homogeneous body of content (or they should if they have a coherent content strategy) created by employees for whom creating content is at least part of their job responsibilities. In addition, that body of content typically concerns a single product or a group of related products, which evolve over time. . . . On the other hand, a publisher has a heterogeneous body of content created by independent authors, writing about independent topics. Each author comes to his or her book with a set of existing skills and tools preferences that he or she is unlikely to want to change for a single project. . . . [In that environment] an overarching content strategy or a common authoring environment is much more difficult to implement.” The author, CEO of XML Press, discusses “the differences in markup and processing environments . . . [and] some of the challenges [the publisher has] faced creating books using DITA and suggests some strategies for overcoming those challenges.”

Lyn Gattis

Use your content development knowledge and a little tool savvy to improve search results for your users

Pohs, W. (2017). *Best Practices*, 19(6), 101, 105–106. [Center for Information-Development Management] [doi: none]

This article provides an overview of search analytics and suggests techniques to improve users' search results. The author recommends the following process:

“Consult search logs and analytics reports to identify user queries; [r]eview the words in titles and in short descriptions to be sure that they match these queries; [c]reate a list of synonyms for the search engine; [d]evelop a process to confirm that the search engine is returning the best or ‘golden’ URLs at the top of the search results list; [r]eview the available search engine enhancement features to see if there are other ways to influence the search result rankings.” The author recommends “repeating these steps according to a predictable schedule, which can be based on content updates, on new search engine releases, or even on a monthly or quarterly cycle” when content is dynamic.

Lyn Gattis

Intercultural issues

Lost in translation no more: A guide to finding the right translator for your project

Stabenow, E. (2017). *AMWA Journal*, 32(1), 16–19. [doi: none]

Stabenow outlines a 6-step process for selecting a translator: 1: Define who you need; 2: Determine what you need to have translated; 3: Choose to work with a freelance or an agency; 4: Know where to find translation professionals; 5: Find the right professional for your job; 6: Communicate with your translator. She offers advice based on extensive experience (“Beware of anyone claiming to translate into and out of several different languages and in many different fields.”).

Magdalena Berry

Using dialectics to build leader-stakeholder relationships: An exploratory study on relational dialectics in Chinese corporate leaders' web-based messages

Ngai, C., & Singh, R. (2018). *International Journal of Business Communication*, 55(1), 3–29. doi: 10.1177/2329488415581151

“In large Chinese corporations operating in the Greater China region, there is an increasing use of web-based bilingual messages by their corporate leaders for fostering relationships with stakeholders. Although frequently presented as literal translations of each other, leaders' bilingual communication sometimes tends to exhibit nonliteral variations. This study aims to examine the relational dialectics theory in the construction of leader-stakeholder relationships in leaders' bilingual web-based messages and explores the dialectical oppositions that are embedded in the Chinese and English versions of these messages. The results suggest that leaders' communication is characterized by the deliberate use of different dialectics that allow them to tailor their communication to the perceived needs of stakeholders from diverse linguistic and cultural backgrounds. In particular, the Chinese version of the message is adapted to exude greater connection, openness, affection, and predictability in content as well as style, which is believed to strengthen relationships with stakeholders.”

Katherine Wertz

Management

Communicating with employees: Resisting the stereotypes of generational cohorts in the workplace

Stanton, R. (2017). *IEEE Transactions on Professional Communication*, 60(3), 256–272. doi: 10.1109/TPC.2017.2702078

“Stereotypes about generational cohorts have been spread widely among current literature; this study challenges those stereotypes and provides a simple method for managers to learn how to effectively communicate with, motivate, and retain employees, no

matter what cohort they belong to. . . . The findings from this study are based on answers to surveys from 107 participants and semistructured interviews with eight of those participants who were employees at a software company or were students or employees at a local university. The findings challenge the stereotypes found in the current literature, specifically concerning longevity in a job and workplace compliance. . . . Managers need to learn more about individual employees rather than relying on stereotypes of generational cohorts when communicating with employees. Learning about individuals is simple and can foster more effective communication, which will enhance employees' job satisfaction and engagement, and ultimately employee retention. . . . [T]hese are crucial variables to consider about a person's tenure in a position and workplace compliance behavior but are not included by most when studying generational cohorts. Further research could help us learn how managers can best develop employees and recognize and reward employees' workplace achievements."

Lyn Gattis

Professional issues

A descriptive survey of technical editors

Kreth, M. L., & Bowen, E. (2017). *IEEE Transactions on Professional Communication*, 60(3), 238–255. doi: 10.1109/TPC.2017.2702039

"The purpose of the study was to fill gaps in our knowledge about technical editors' work practices and perceptions, knowledge that might be useful for teachers and practitioners, as well as current and prospective students. . . . A link to an online survey was sent to 32 professional organizations for technical and other professional, nonliterary, and nonjournalism editors. The leadership of each organization was asked to forward the link to its members; 12 complied, with a resulting 253 respondents. Responses to closed-ended questions were tabulated, while responses to the open-ended questions were analyzed thematically. . . . The results revealed a broad range of job titles, disciplinary and professional fields, genres and

media, editing-related tasks, and extent and type of collaboration. Respondents perceived as useful several forms of academic preparation, personality traits, and attitudes. About half the respondents had become editors through deliberate preparation during college (direct route) and half had not (indirect route). Thus, one implication of the results is that college students majoring in the sciences and other technical fields (indirect route) might be attracted to complementary minors and certificate programs in technical communication/editing. . . . Future surveys should strive for a larger sample size and include questions about a wide range of demographic variables that can be correlated with the independent variables."

Lyn Gattis

Research

Blending humanistic and rhetorical analysis to locate gendered dimensions of Kenyan medical practitioner attitudes about cancer

Mara, M. (2018). *Technical Communication Quarterly*, 27(1), 93–107. doi: 10.1080/10572252.2018.1401344

"Medical humanities and the rhetoric of health and medicine apply different methods to healthcare documents and discourses. This methodological reflection of a project studying cancer attitudes in Kenya describes how researchers combined practices from these disparate fields to produce more sensitive and ethical methods for studying cross-cultural contexts. By extending humanistic methods into social-science data collections, researchers were better able to ask precise questions and to perceive context-specific cues for consent and non-consent."

Rhonda Stanton

Methods to evaluate pilots' cockpit communication: Cross-recurrence analyses vs. speech act-based analyses

Gontar, P., Fischer, U., & Bengler, K. (2017). *Journal of Cognitive Engineering and Decision Making*, 11(4), 337–352. doi: 10.1177/1555343417715161

“The training and evaluation of the crew resource management skills of pilots play an essential role in increasing flight safety, as they aim to reduce human error in aviation operations. Communication between pilots is a critical crew resource management skill, as flying an airplane requires coordinated action and collaboration by the flight deck crew. However, research that studied flight instructors' agreement in (and, thus, the accuracy of) their evaluation of pilots' communication behavior found little consistency in their judgments. As such, the present research explores the feasibility of a content-free approach—cross-recurrence analysis—to assess crew communication, in contrast to commonly employed content-based approaches that are grounded in speech act analysis. Results indicate that cross-recurrence analysis can identify communication patterns associated with high and low crew performance. [The authors] discuss the implications that these results may have for future research and communication assessment in pilot training.”

Yvonne Wade Sanchez

Usability

Community-based user experience: Evaluating the usability of health insurance information with immigrant patients

Rose, E. J., Racadio, R., Wong, K., Nguyen, S., Kim, J., & Zahler, A. (2017). *IEEE Transactions on Professional Communication*, 60(2), 214–231. doi: 10.1109/TPC.2017.2656698

“User experience (UX), a common practice in corporate settings, is new for many nonprofit organizations. This case study details a community-based research

project between nonprofit staff at a community health center and UX professionals to improve the design and usability of a document designed to help immigrant patients sign up for health insurance. . . . As a community-based research project focused on the collaborative generation of practical knowledge, [the researchers] conducted a usability study with 12 participants in two language groups, Chinese and Vietnamese, to evaluate the design and usability of a guidebook designed to provide guidance about enrolling in a health insurance plan. Data were analyzed to identify usability concerns and used to inform a second iteration of the guidebook. . . . Version 1 of this guidebook was evaluated in a usability study, with results showing that users struggled to correctly choose a plan, determine their eligibility, and interpret abstract examples. As a result, Version 2 was designed to support the in-person experience, reduce visual complexity, and support patients' key questions. . . . Community-based UX collaborations can amplify the expertise of UX and nonprofit professionals. However, UX methods may need to be adapted in community-based projects to better incorporate local knowledge and needs.”

Lyn Gattis

A practical guide to improving web accessibility

Ng, C. (2017). *Weave*, 1(7). doi: 10.3998/weave.12535642.0001.701

This article gives guidance for making any digital content accessible according to the World Wide Web Consortium (W3C) standards in a way that positively affects usability and user experience (UX). Facets covered include plain language, formatting with headings, adding links, *alt text* (alternative text) for images and other visuals, and color concerns. The author gives specific website advice for helping developers check their content and working with their vendors.

Diana Fox Bentele

Rethinking self-reported measure in subjective evaluation of assistive technology

Hossain, G. (2017). *Human-centric Computing and Information Sciences*, 7(23). doi: 10.1186/s13673-017-0104-7

“Self-reporting is used as a subjective measure of usability study of technology solutions. In assistive technology research . . . often . . . ‘a coordinator’ directly assist[s] the ‘subject’ in the scoring process. This makes the rating process slower and also introduces bias, such as, ‘Forer effect’ and/or ‘Hawthorne’ effect. To address these issues [the author] propose[s] to use technology mediated interaction between the ‘subject’ and ‘the coordinator’ in evaluating assistive technology solutions. The goal is to combine both the qualitative and quantitative scores to create a relatively unbiased rating system. Empirical studies were performed on two different datasets in order to illustrate the utility of the proposed approach. It was observed that, the proposed hybrid rating is relatively unbiased for usability study.”

Yvonne Wade Sanchez

Writing

Epideictic rhetoric born digital: Evolution of the letter of recommendation genre

Thomlinson, E., & Newman, S. (2018). *Journal of Business and Technical Communication*, 32(1), 3–37. doi: 10.1177/1050651917729862

“The letter of recommendation (LOR) plays a significant role in the application process for many professional positions, offering descriptive rather than quantitative information from a third party about an individual’s potential fit within the hiring organization. Such letters, however, increasingly appear online, emphasizing existing problems within the genre and creating others involving trust, reliability, and confidentiality. Typically, the response has been that such digitization of the LOR minimizes its significance or standardizes it. This article analyzes the digital LOR genre as an exemplar of epideictic rhetoric situated within a Perelmanian framework and demonstrates

how the digital LOR operates rhetorically, enhancing the adherence between candidate, writer, audience, and institutional values and providing a means of evaluating candidate fit. The article also offers a rhetorical heuristic that captures how audiences can more fruitfully read the epideictic, digital LOR, thereby demonstrating how to optimize the digital platform’s benefits and still use the LOR to its best rhetorical advantage.”

Sean C. Herring

“Someone just like me”: Narrative, figured world, and uptake in therapeutic books for youths with mental health disorders

Smart, G., & Thompson, R. (2017). *Written Communication*, 34(1), 5–29. doi: 10.1177/0741088316681997

“This study extends a line of inquiry established by researchers using narrative theory to investigate the discourses of psychiatry. Drawing primarily on theories of narrative and genre, the study analyzes a series of autobiographical books intended for an audience of youth suffering from mental illness. [The authors’] research investigates how the rhetorical design of the books harnesses the discursive affordances of autobiographical narrative to encourage a particular uptake on the part of a reader suffering from mental illness. Performing an analysis of four of the books in the series, [the authors] found them to exhibit a design in which autobiographical narrative is used to prompt an anticipated uptake by the reader: motivation to commit to therapy and engage in lifelong self-care. The study offers insights to authors producing texts intended to support psychiatric practitioners in guiding youth toward recovery from mental illness.”

Lyn Gattis

To promote that demand: Toward a history of the marketing white paper as a genre

Malone, E. A., & Wright, D. (2018). *Journal of Business and Technical Communication*, 32(1), 113–147. doi: 10.1177/1050651917729861

This article contains historical information that may be a resource to instructors and practitioners about the evolution of a well-known document used in technical communication. “Although various types of documents are called *white papers*, in technical marketing communication the white paper is usually a document that describes a new or improved technology in order to generate interest in—and promote sales of—that technology. Most sources discussing the history of the white paper assume that marketing white papers evolved from government white papers. They conflate genre history with etymology. At some point in the mid-20th century, the term *white paper*—denoting a type of government policy document—began being applied to other types of documents, including eventually a particular form of technical marketing communication. This article proposes a revised history of the marketing white paper as a genre. By examining the formal features and characteristic substance of white papers through the lens of their pragmatic value as social action, [the authors] show that the marketing white paper of today has much in common with documents from the 16th, 17th, and 18th centuries.”

Sean C. Herring

The use of passives and impersonal style in civil engineering writing

Conrad, S. (2018). *Journal of Business and Technical Communication*, 32(1), 38–76. doi: 10.1177/1050651917729864

“Claims abound about passives and the impersonal style they create. Few studies, however, check the claims with a large, systematic analysis of texts from either academia or industry. Motivated by the need to teach effective workplace writing skills to undergraduate engineering students, this study investigates the use of passives and associated impersonal style features in 170 practitioner reports, journal articles, and student reports from civil engineering. Using multidimensional analysis (a technique from corpus linguistics) and interviews of practitioners, students, and faculty, the study found that, as expected, engineering texts, compared to nontechnical texts, have a frequent use of impersonal style features; however, they use passives for a wider range of functions than is typically described in technical writing literature. Furthermore, compared to the journal articles and student reports, the practitioner reports use significantly fewer features of impersonal style. The findings inform teaching materials that present a more realistically complex picture of the language structures and functions important for civil engineering practice.”

Sean C. Herring